2011 Water Levels

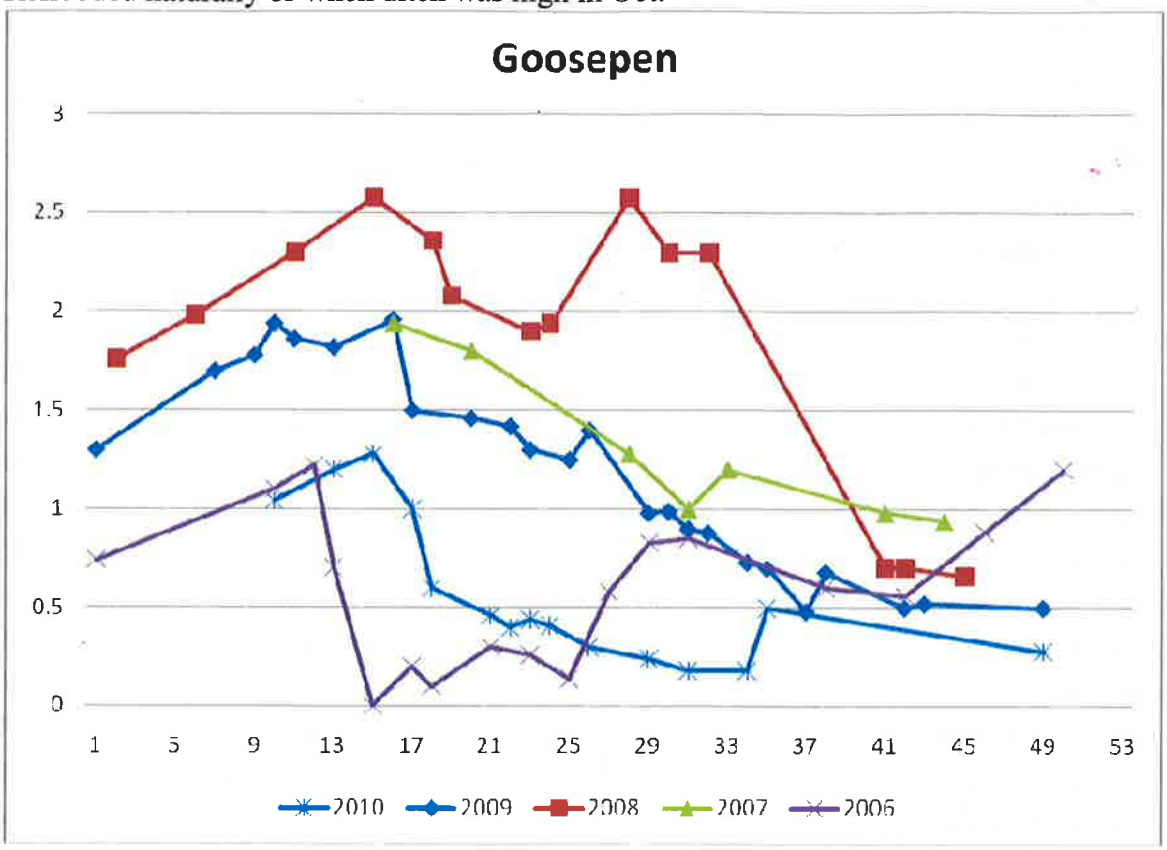
Contents

Unit: Goose Pen

Acres: 57

2010 Activity: Unit was drawn down in April for shorebird habitat using a portable pump. Tried reflooding unit in October but there was no water to reflood the unit. Need water for 2011.

Draw Down Years: 2010- drawn down in April unable to reflood until 2011. 2009 - low water allowed evapotranspiration to expose mudflats on high ground areas in September (0.48); 2006 – March through September draw down. 50% mudflats exposed April 10. Reflooded naturally or when ditch was high in Oct.



Unit Goal: Provide foraging and resting habitat for migratory birds.

Objectives: Control exotic flowering rush and purple loosestrife. Encourage more desirable vegetation. Put in a rotation for fall shorebird habitat.

Strategies:

Draw down for early May shorebird habitat. Reflood for fall waterfowl migration.

Management Strategy Constraints: The east dike is in bad shape. There is a French drain under the road that goes to the check station that allows the ditch next to Magee's entrance road and shop to drain. When the unit is too high, water backs up and threatens the Magee shop/garage. During high spring lake levels is conjuction with lots of rain the culvert under our entrance road is too small and water backs up in the drainage ditch and floods Magee's entrance road and prevents Goosepen from draining. 2.0 is full pool & will begin flooding state.

Repairs Needed: II. East dike in bad shape, and portions of west dike.

Unit: **Goose Pen:** 2.0 is full pool (1' free board on east dike – dike in bad shape)

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
Old	new			old	new	
			Jan.			
			Feb.			
2.0						
			Mar.			
		10	12	1.2		
			Apr.			Draw down for May shorebird habitat – portable pump
0.5			May			
		20	19	1.58		
		21	26	1.66		Lots of Cottonwood growing in unit
			June			
		26	28	1.28		
		29	July 10	1.10		Free flow water in to 1.10, then closed
		30	25	1.26		
		32	Aug 10	1.34		Pumping in w/ Thompson
		33	15	1.40		
		35	30	1.43		Thompson removed 9/1 1.49, pump running
		36	Sept. 8	1.64		Reflood
		37	13	1.75		
		40	Oct. 3	1.80		
		41	12	1.73		
		43	27	1.9		
		45	Nov. 7	1.90		
		48	28	2.14		Open Full to Ditch
		49	Dec. 5	1.83		
		51	19	1.63		

1/30 1.7

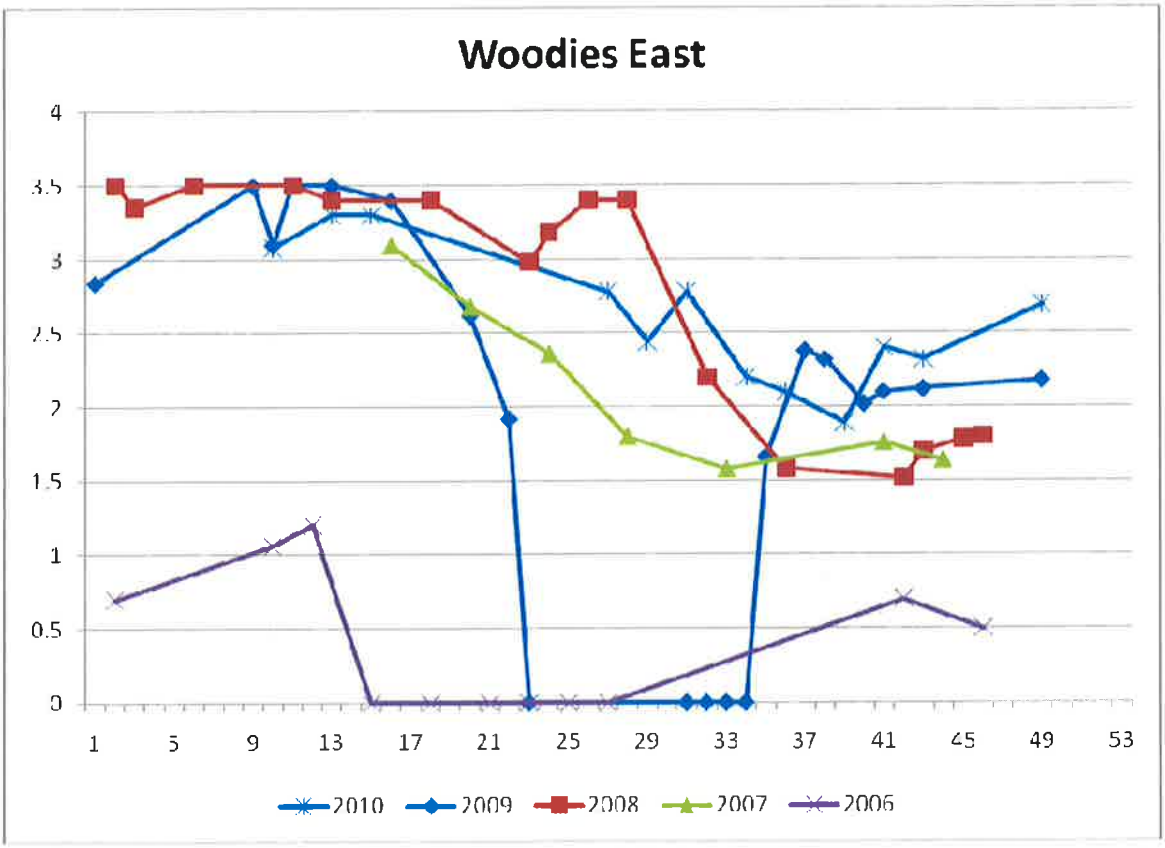
3/8 1.92

Unit: Woodies Roost East

Acres:

2010 Activity: The south unit was at full pool early March it was opened to Woodies West in April. In September water was too low for waterfowl hunts at 2.1 muck was in front of blind. Desired water level has changed from 1.7-1.9 to 2.4 due to movement of the staff gauge. Construction on common dike may require spring drawdown.

Draw Down Years: 2009 – drawn down mid April, completed by May 30th, flood mid Aug great millet germination; 2006 – drawn down mid march, completed mid April. Reflooded in Aug.



Unit Goals: Provide foraging habitat and cover for wading birds and waterfowl.

Objectives: Manage for hemi marsh conditions and watch invasives

Strategies: Divider dike possibly scheduled for repair. Draw unit down depending on construction.

Potential Problems: Beaver, fixed leaking gate on the north side in 2009, coordinating management with Magee's activities may require timing adjustments, This unit has a watershed to the south & will gain more water during rain events.

Repairs Needed:

II. North half of divider dike between west and south woodies needs rebuilt & raised.

Unit: **Woodies Roost East –**

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
Old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	12	2.01		
2.7-3.0						
						Attempted drawdown 2x in May, water flowed over, due to ditch plug failure
			Apr.			
2.7-3.0						
		18	May 5			1/2" from Top of Board
		21	23	2.86		- Closed
		23	June 6	2.76		Ditch plug from R+2 failed, Drawdowns for construction Kept failing repl/water, filled w/ 600lbs of Aquablock
		"	11	—		
		25	21	4.26		
		26	27	1.18		
		27	July 7	—		Drawdown
		29	18	—		mudflats
			Aug.			
			Sept.			
2.40		40	Oct. 3			Pumping in
		41	12	2.30		
		45	Nov. 7	2.82		
		48	Dec. 2	~3.7		Over gauge ~2 1/4, 3" post shown
						12/5 ~3.6 - open full time

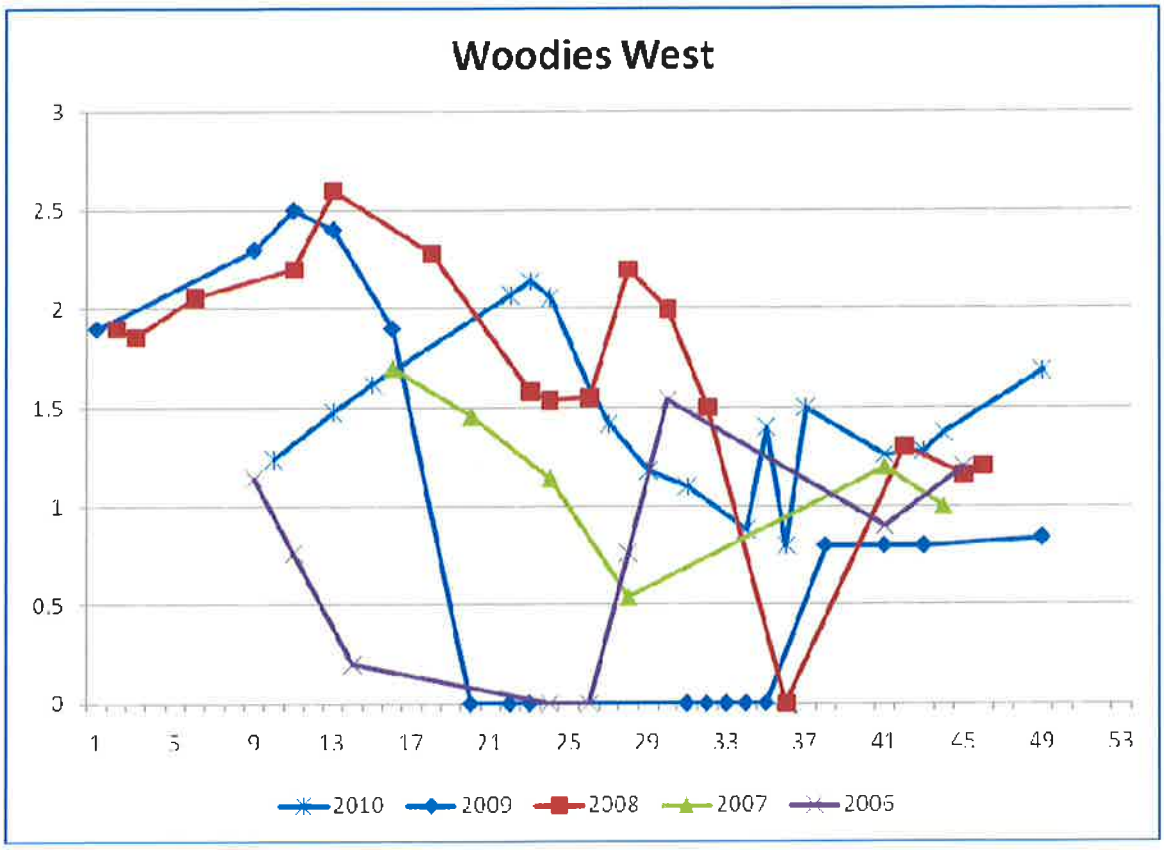
1/30 Underwater

Unit: Woodies Roost West

Acres:

2010 Activity: Opened to Woodies East in April to gain more water by September there was no water at gauge. Started pumping with Thompson from states ditch September 13.

Draw Down Years: 2009 – drawn down mid April, completed by May 30th, flood mid Aug; 2006 – drawn down mid march, completed mid April. Reflooded in Aug.



Unit Goals: Provide foraging habitat and cover for wading birds and waterfowl.

Objectives: Manage for hemi marsh conditions

Strategies: East divider dike and south dike possibly scheduled for repair. Draw unit down depending on construction.

Potential Problems: Beaver and construction

Based on previous years, full pool is 2.6, however the unit does not appear to be able to maintain this high of a level. There is likely a leak somewhere. Staff plate meets bottom of unit at 0.8.

Repairs Needed:

II. North half of divider dike between west and south woodies needs rebuilt & raised.

II. Screw gate between woodies west & south unit with blinds 141 &142.

Unit: **Woodies Roost West** – Based on previous years, full pool is 2.6. Bottom of unit at .8

Desired water level		wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
		10	Mar.			
2.3-2.6			12			To the top of the plate
			Apr.			
2.3-2.6						
		18	May 5	1.90		
		19	12	1.46		closed
			June			
		25	21	1.3		OK WL for divider dike construction
		26	22	0.7		Mud, water below gauge levels
		27	July 7	—		Drawdown
		28	18	—		mudflats
			Aug.			
			Sept.			
			Oct.			
1.2						
		45	Nov. 7	Below	gauge	
						open w 10" E tiw
		48	Dec. 2	1.29		5 1.75 - opened full

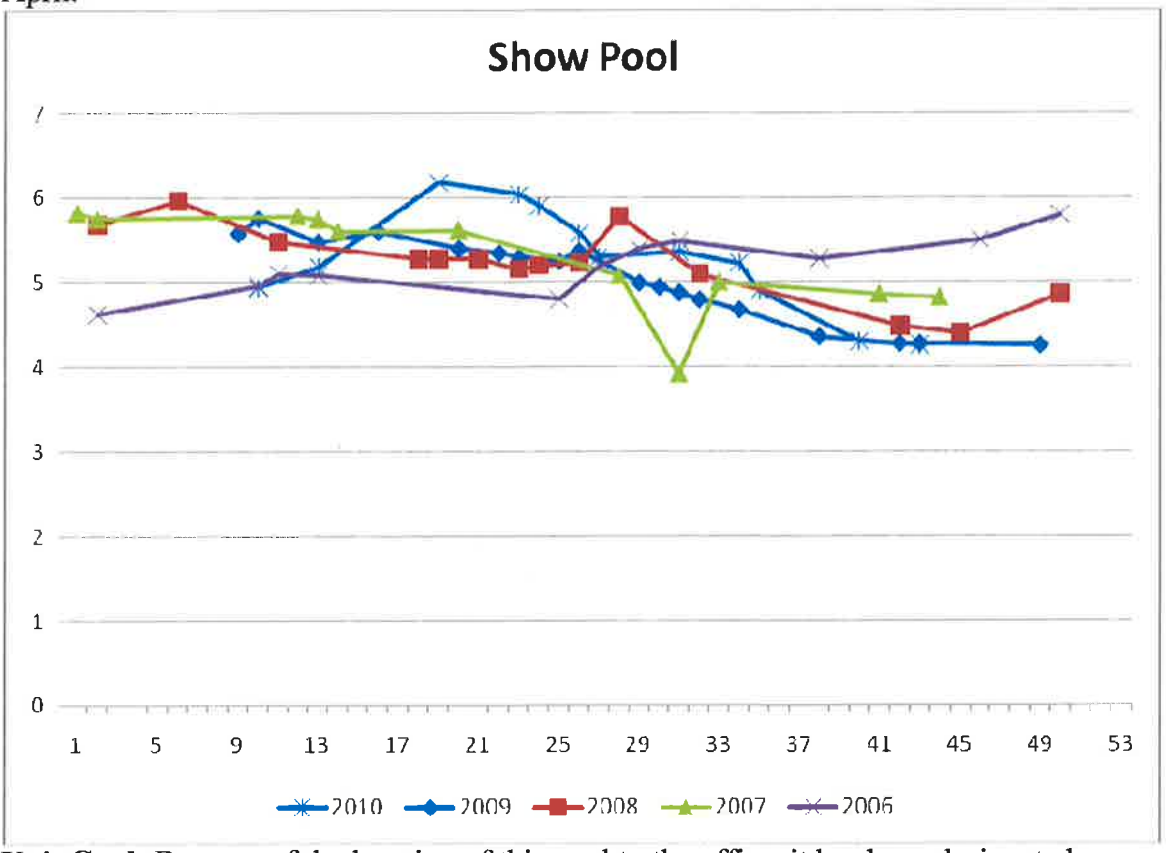
1/30 2.5

Unit: Show Pool

Acres: 41

2010 Activity: Evapotranspiration resulted in water only in the channel and platform are in September. In January 2007, top board was replaced to maintain lower water levels to prevent high water in woods east of shop and to prevent damage to south and east dikes. Need to check structure to see if it is functioning.

Draw Down Years: 2009-Evapotranspiration resulted in water only existing in borrow areas in midseptember; 2005 – similar conditions as in 2009; 2004- agridrain installed in April.



Unit Goal: Because of the location of this pool to the office, it has been designated as a "show" pool with the intent that it can provide viewing of waterfowl including other wildlife and be a model wetland. This unit will be managed as a permanent wetland with deeper water to over winter fish and provide public catch and release fishing opportunities. Reevaluate in 2010.

Objectives: Increase diversity of emergent marsh vegetation and provide deep water for fish habitat.

Strategies: Monitor dikes, woods behind shop, and water depth on higher ground. Treat invasives. Phrag patches need sprayed in unit.

Management Strategy Constraints: East dike and south dike weakest/lowest of unit. Max water level is 5.48. Ideally, we'd have more water in showpool. The problem is low lake levels and lack of a water source. Future plans may need to think about dredging NS radar ditch or consider managing for other habitat types (ie – scrub/shrub)

Repairs Needed:

II. East dike shared with goosepen is getting high muskrat damage

III. South dike likely permeable when water is high, consider future management before repairing

Unit: **Show Pool** - Agridrain 15 ¾" wide. Max water level is ~~5.60~~ 5.48

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
		10	Mar.			
			12	5.60		
>5.5						
			Apr.			Shoot water levels btwn goosepen & showpool – look for possible connection
5.48						
		20	May 16	5.59		Gauge is leaning a bit
		21	26	5.64		Flowing out.
		24	June 13			NO PLATE
						Perhaps switch top board with a bigger board?
		24	15			NO PLATE Cont New board, old gauge to right
		26	28	5.38		
		27	July 7	5.36		
		29	18	4.90		2
		30	25	5.30		
		32	Aug 8	5.22		
		33	12	5.10		
		35	30	5.04		
		36	Sept. 8	5.19		
		40	Oct. 7	5.44		
		41	12	5.41		
		42	20	5.66		
		45	Nov. 7	5.58		
		48	Dec. 2	5.76		Flowing out agridrain
		51	19	5.59		" " "

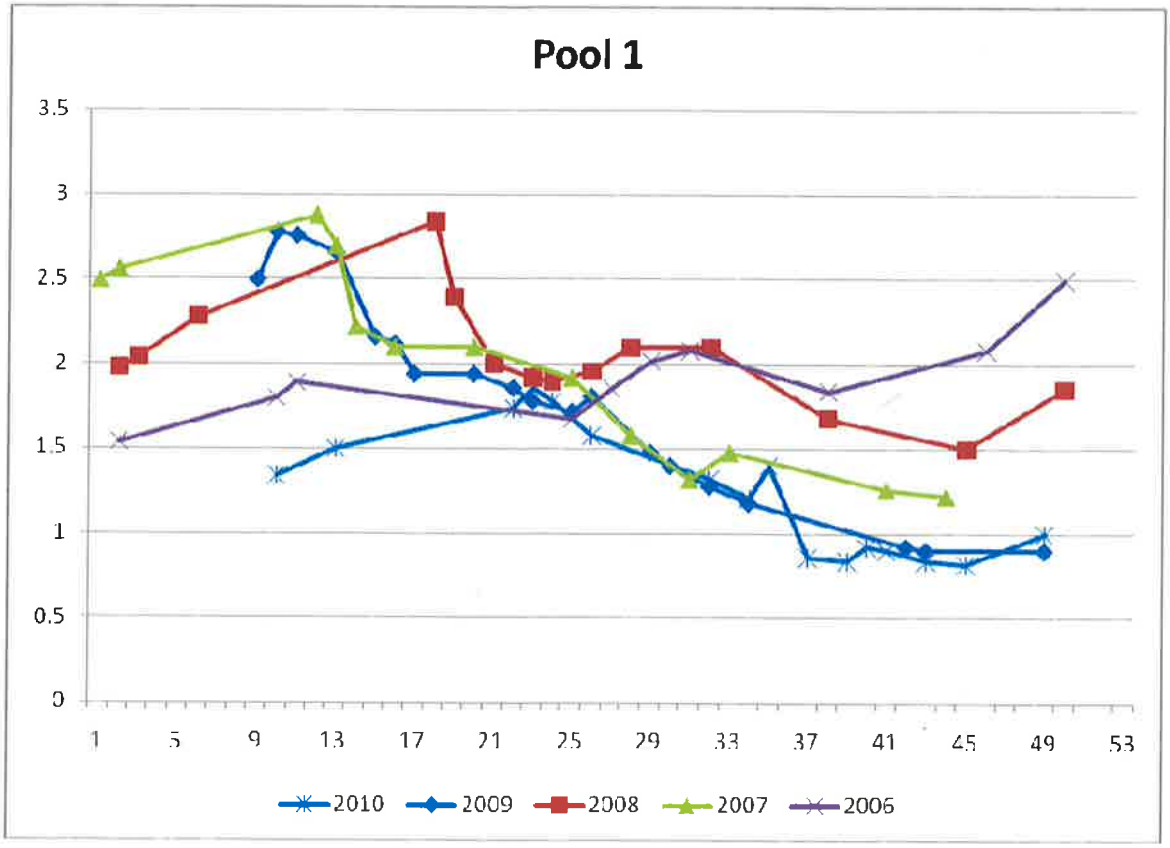
1/30 5.6
3/8 5.59

Unit: Pool 1

Acres: 343

2010 Activity: Water was lower than the desired water level all year. By October there was water in open areas but in September water levels were low for waterfowl hunts but at times were hunt able. Try to add water in spring possibly from the State or set a pump up in pump structure.

Draw Down Years: no record



Unit Goal: Provide habitat for nesting common terns, foraging herons, mussel beds, rails, and fish. As well as provide a rest area for waterfowl.

Objectives: The topography of this unit allows for a variety of water level depths. To provide habitat for nesting common terns, fish and mussels, maintain deep (3-4ft) open water areas. Provide emergent and submergent wetlands for wading birds, waterfowl and invertebrates. The higher elevation areas along the south and north parts of the unit will provide flooded grass and sedge areas for rails.

Strategies: Ensure unit is at optimum pool in the spring and allow evapotranspiration to decrease water levels no lower than 1.0 by September.

Management Strategy Constraints: Screw gate on west side not able to close – it keeps coming off of frame. Gate to lake is closed.

Repairs Needed:

II. Water control structure on west side - screw gate comes off braces when closed. Currently open, but creek gate closed.

Unit: **Pool 1** – Management may change based on Crane Creek structure

Desired water level		wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	12	1.89		
2.3-2.4						
			Apr.			
		20	May 16	2.28		
		"	16	2.34		
2.0		24	June 13	2.14		
		24	15	2.16		
		25	24	2.12		
		27	July 7	1.88		
		29	18	1.68		
		30	25	1.88		
		32	Aug. 8	1.80		
		32	12	1.70		
		35	30	1.58		
		36	Sept. 8	1.72		
		40	Oct. 3	1.96		
1.1-1.2		41	12	1.92		
		42	20	2.12		
		43	27	2.12		
		45	Nov. 7	2.11		
		48	Dec. 2	2.57		
		51	19	2.75		

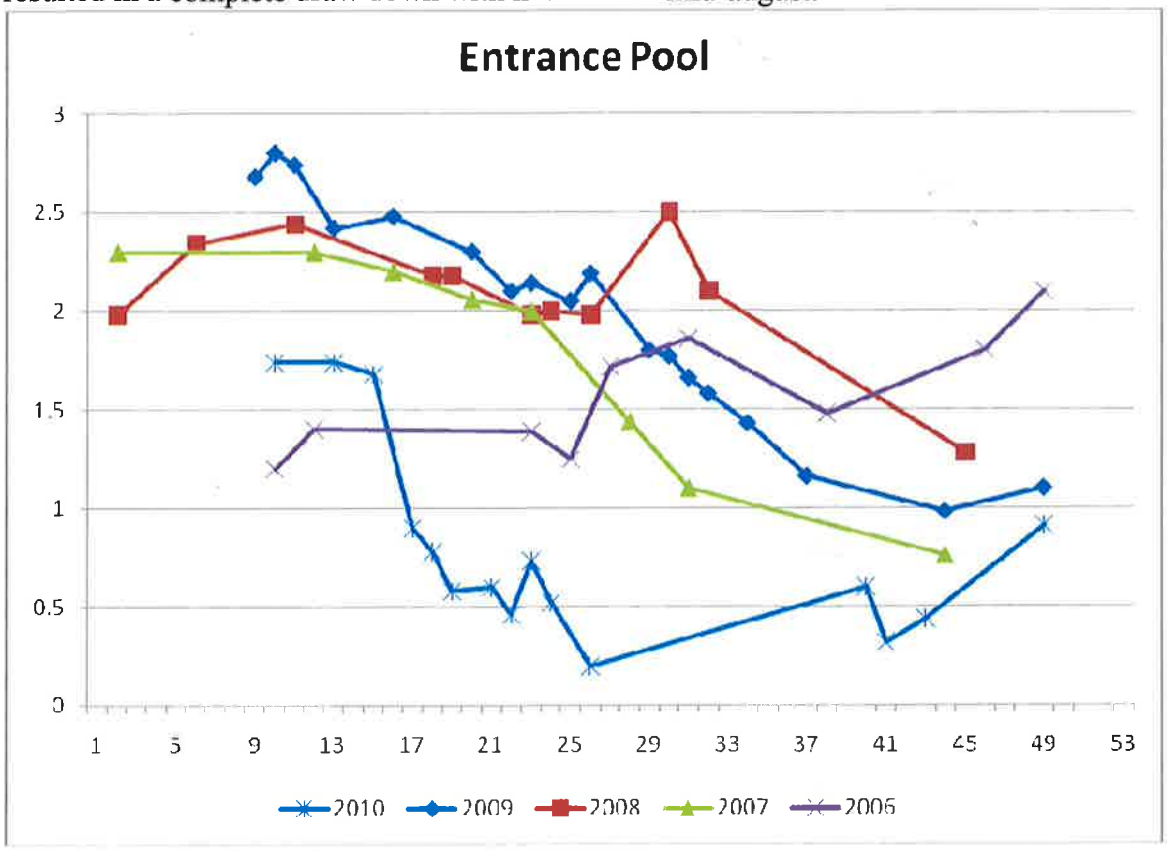
11/30 3.0
3/8 3.1

Unit: Entrance Pool

Acres: 150

2010 Activity: A 4 inch board was pulled in March to let high water out. Unit flowed over boards through April. Lots of burreed production in mid-June.

Draw Down Years: 2010 – D.D. in June tried reflooding in October but there was not enough water to free flow needed to pump with a Thompson. 2009 - evapotranspiration resulted in a draw down with water only remaining in channel along Entrance Rd; 2007 - evapotranspiration resulted in a draw down with water only remaining in channel along Entrance Rd; 2005 – Construction (new stoplog structure) and evapotranspiration resulted in a complete draw down with mudflats in mid-august.



Note: 1.0 = water only in channel.

Unit Goal: Provide a diversity of marsh type habitats, ranging from cattail stands to open water. Attract a variety of waterfowl, shorebirds, water birds, and wetland animals to provide opportunities for wildlife viewing. Control exotic invasive species.

Objectives: Provide shallow to deep emergent marsh. Maintain higher water levels to combat purple loosestrife.

Strategies: Draw down for May shorebird habitat, reflood for fall migration.

Management Strategy Constraints: Water can only be added by using a portable pump.

Repairs Needed: Check Boards make sure they are functioning.

Unit: **Entrance Pool**

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	12	1.8	73.77	
<1.7						
			Apr.			~~Draw down for May mudflats~~
1.0?		20	May 16		73.6	
		23	June 10		73.53	
		24	15		73.14	
		25	24		72.96	
		27	July 7		72.50	
		29	18		72.40	
		30	28		72.41	
		32	Aug. 8		73.16	
		33	12		72.04	
		35	30		71.88	
		36	Sept. 8		72.58	~~Reflood~~
		40	Oct. 7		71.96	
1.28		41	12		71.90	
		41	12		72.96	
		43	27	1.7	72.6	
		45	Nov. 7		71.62	
		48	280.87		72.81	Lower Boards were up?
			Dec.			

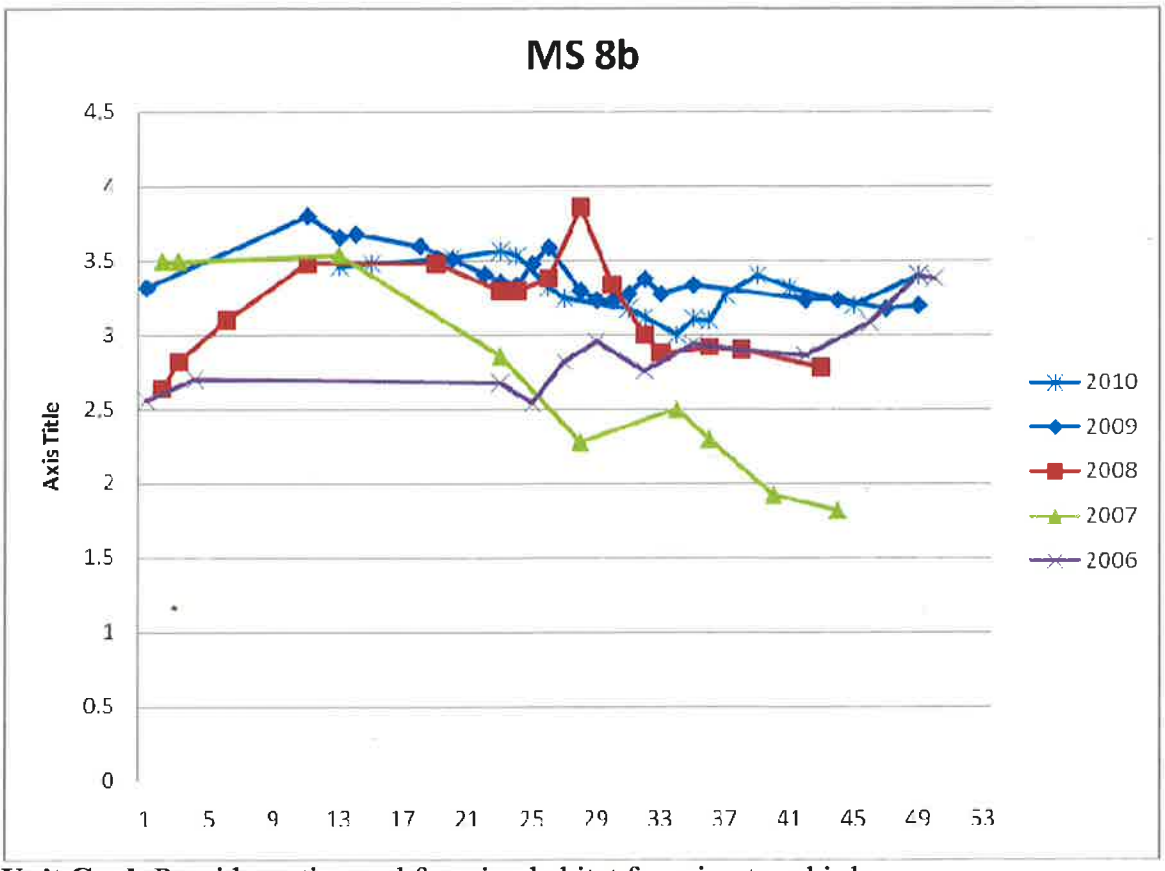
3/8 73.6

Unit: MSU 8B

Acres: 100

2010 Activity: Water was at desired levels from March to August. Then pump was turned on periodically throughout Mid-August through mid-September.

Draw Down Years: 2005 - drawn down briefly in June for construction and reflooding began by end of month; 2004 – drawn down March and reflooded in late August; 2003?



Unit Goal: Provide resting and foraging habitat for migratory birds.

Objectives: Manage against invasives and allow for more open areas in the marsh.

Strategies: Maintain high water levels in the unit throughout the growing season. This will likely require periodic pumping and active management.

Management Strategy Constraints: Water levels may need to be manipulated to install a pump structure from the Visitor Center ditches into 8b as well as add an agridrain to the south east corner of the unit. Full pool 3.40-3.46 – May need to pump to maintain high water.

Repairs Needed: Pump (motor) was replaced in September 2010.

Unit: **MS 8b** - Full pool 3.40-3.46 – Readings can be taken from the SE structure measuring from water's surface to top of brace. Tape measure reading of 21 ½" = 3.48

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
		10	Mar.			
			10	3.82	74.12	
3.4/21.5"						
			Apr.			
		17	26	3.98	74.27	opened
		17	29	3.8	74.08	
		18	May 2	3.56	73.85	closed May 4 73.75 3.46
		20	16	3.43	73.70	
		22	31	3.52	73.82	
		22	June 6	3.14	73.42	
3.4		23	10	2.96	73.20	
		25	24	2.74	73.07	
		27	July 7	2.50	72.78	11 72.70 Mud flat in W end
		29	18	2.30	72.58	
		30	25	2.59	72.88	Thompson pumping in from west ditch
3.4		32	Aug. 8	2.58	72.88	
		32	12	2.80	72.80	
		35	31	2.38	72.66	
		36	Sept. 8	2.54	72.82	
		36	9		72.92	
3.4						
		41	Oct. 12	2.80	73.08	
3.4		42	20	3.00	73.30	
		43	27	3.03	73.3	
		45	Nov. 7	3.01	73.38	
		47	21		73.35	
		51	Dec. 19	3.66	73.95	1-2" from top of Boards

1/30 3.9 74.20

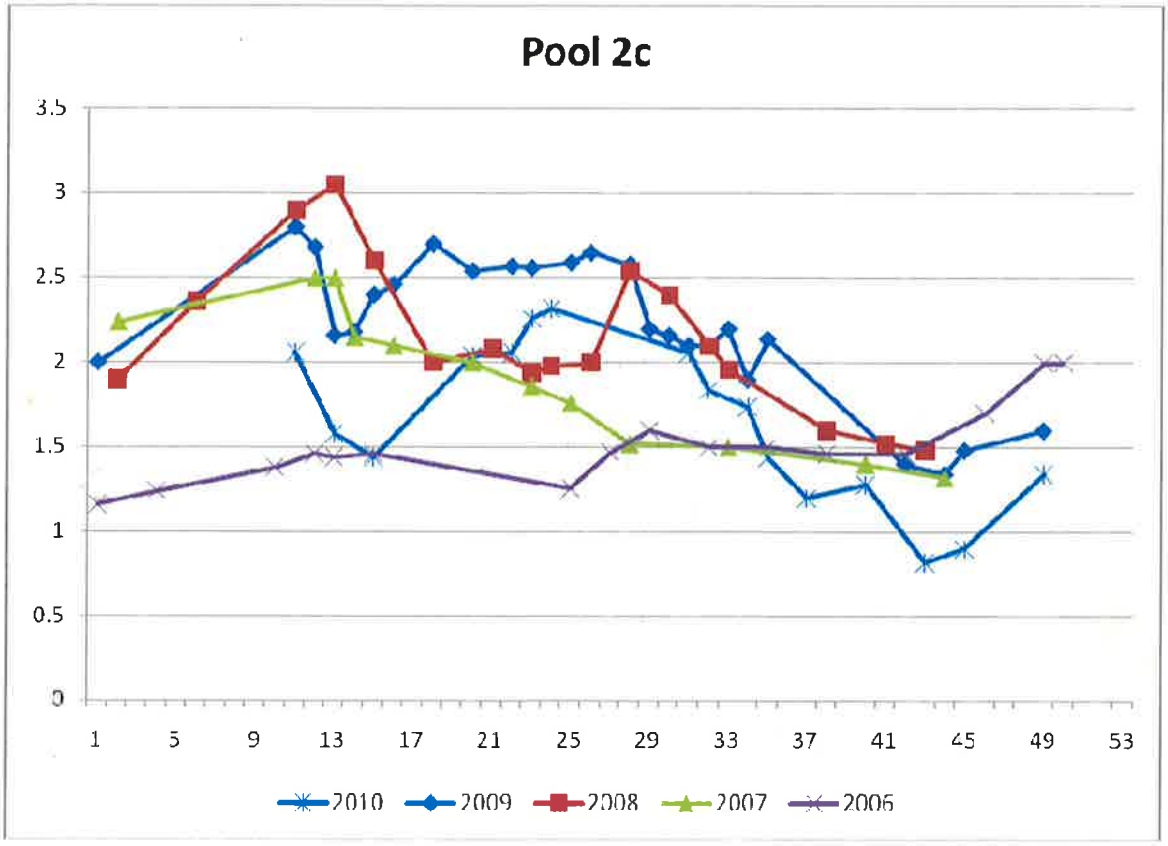
3/6 4.0 74.28

Unit: Pool 2C

Acres: 82

2010 Activity: This unit was opened to Crane Creek in mid-March and remained open until trapping season started on the refuge in early November. Water levels fluctuated with estuary.

Draw Down Years: 2005 – Pumped down mid-March through end of May with 60% mudflats achieved, remainder 6 in or less. Unable to pump down further. Evapotranspiration led to most of unit drawn down by July. Unit gained water in August and reached May levels again. Unit was reflooded in September. High levels of P.L establishment.



Unit Goals: Attract a variety of waterfowl, shorebirds, water birds, and wetland animals to provide opportunities for wildlife viewing. To enhance water level management capabilities, a project to ditch MS 8A and install individual stop log structures to Pool 2A, 2B, and 2C is proposed.

Objectives: Manage for hemimarsh conditions.

Strategies: Leave open to lake ditch to allow water exchange. Ideally, maintain higher water levels in the spring to stress surviving loosestrife plants (approximately 2.0). Allow for evapotranspiration.

Management Strategy Constraints: Water can only be added with a portable pump or high lake levels. High lake levels can also inhibit taking water off the unit and free flowing into the lake.

Repairs Needed:

Unit: **Pool 2c** – 2.0 on the gauge = 2 - 2 ½ feet of water across most of unit.

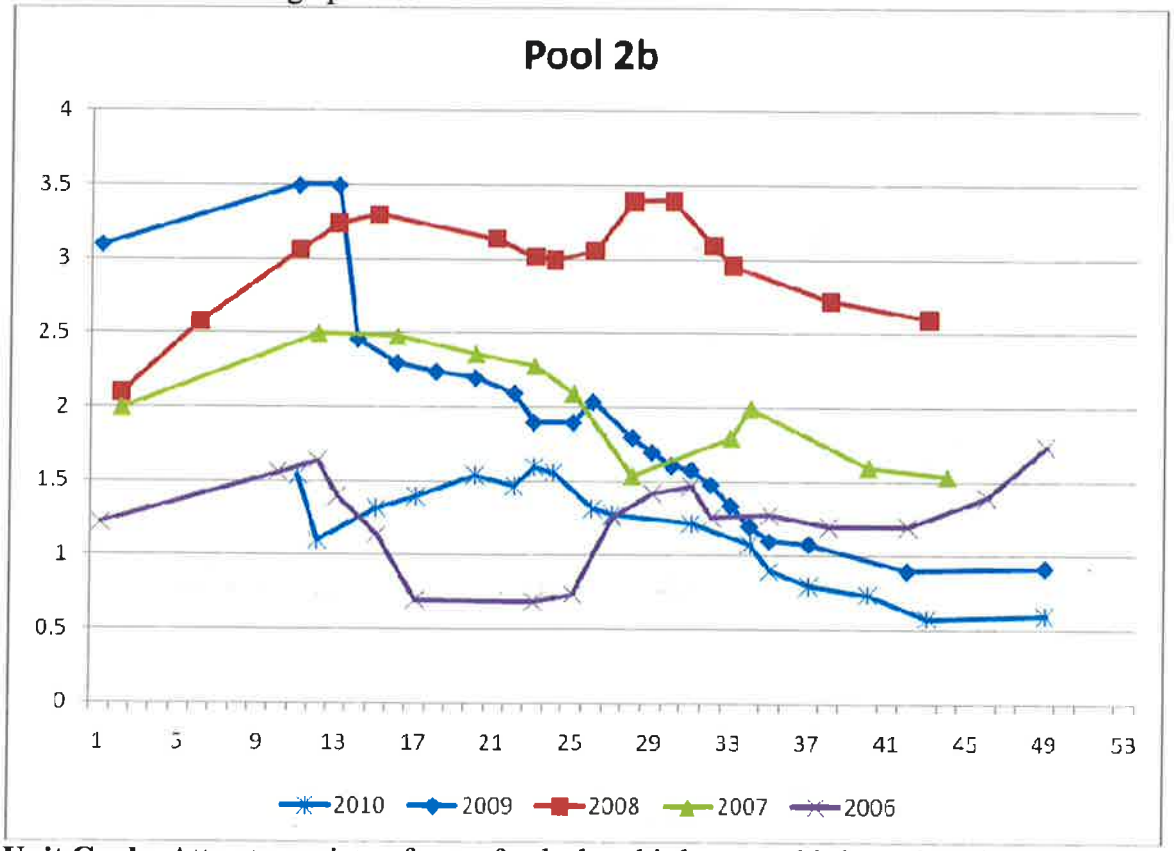
Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	12	2.22	72.15	Leave open until minimum thresthold of 1.7 is reached
2.0						
			Apr.			
		17	26	3.2	73.1	
		22	May 31		73.48	Old grass underwater
>1.7		23	June 10		73.30	old gauge NO longer underwater
					73.32	old Gauge under heater
		25	24		73.34	
		27	July 7		73.14	
		28	13		73.02	Opened to Lake, 2+' open
		29	18	2.64	72.56	
		30	25		72.56	
		32	Aug 8	2.50	72.44	
		"	12	2.38	72.38	
		35	31		72.18	↓ CC gauge @ 72.10
					~~72.21~~	
			Sept.			
				2.3		
		43	Oct. 2	~~2.1~~	72.2	
1.4						
		45	Nov. 7	1.94	71.84	
		46	17	1.74	71.64	
		47	21	1.80	71.70	Closed before ice up
		48	Dec. 2	2.20	72.12	
		51	19	2.40	72.32	
				2.69	72.6	
				2.80	72.7	

Unit: Pool 2B

Acres: 95

2010 Activity: High water was let out in March through the Pool 1 structure. Mudflats were exposed on the south side of the unit. A drawdown was conducted in mid-August for the construction of the fish passage. Pumping was completed by early September, and evapotranspiration was allowed to continue drawdown. Unit received fair shorebird and teal use, and good egret/heron and dabbler use in fall.

Draw Down Years: 2010- for construction of the fish passage. 2009- mid August draw down for fall shorebird migration, fair results achieved; 2006 – Unit was pumped down in mid-March and managed for mudflats & spring shorebird habitat through June. Unit was reflooded in July; 2005 – Pumped down early August for fall shorebird migration. 90% mudlflats achieved by early September. Excellent shorebird response. Low lake levels limited flooding options.



Unit Goals: Attract a variety of waterfowl, shorebirds, water birds, and wetland animals to provide opportunities for wildlife viewing.

Objectives: Perennial smartweed is the dominant emergent vegetation in the unit, try to encourage more variety of vegetation. Provide areas of deep submergent wetlands for fish and invertebrates, as well as shallow emergent wetlands for wading birds and waterfowl.

Strategies: Install new water control structure in spring/summer to open this unit to fish passage and water exchange with estuary (USGS project). Draw down for April shorebirds.

Management Strategy Constraints: Currently there is no independent water control for this unit, unless a portable pump is used. This can be costly and needs frequent monitoring/maintenance. Refuge budget and project priority will determine water management activities.

Long term Pelee Aug

Unit: **Pool 2b**

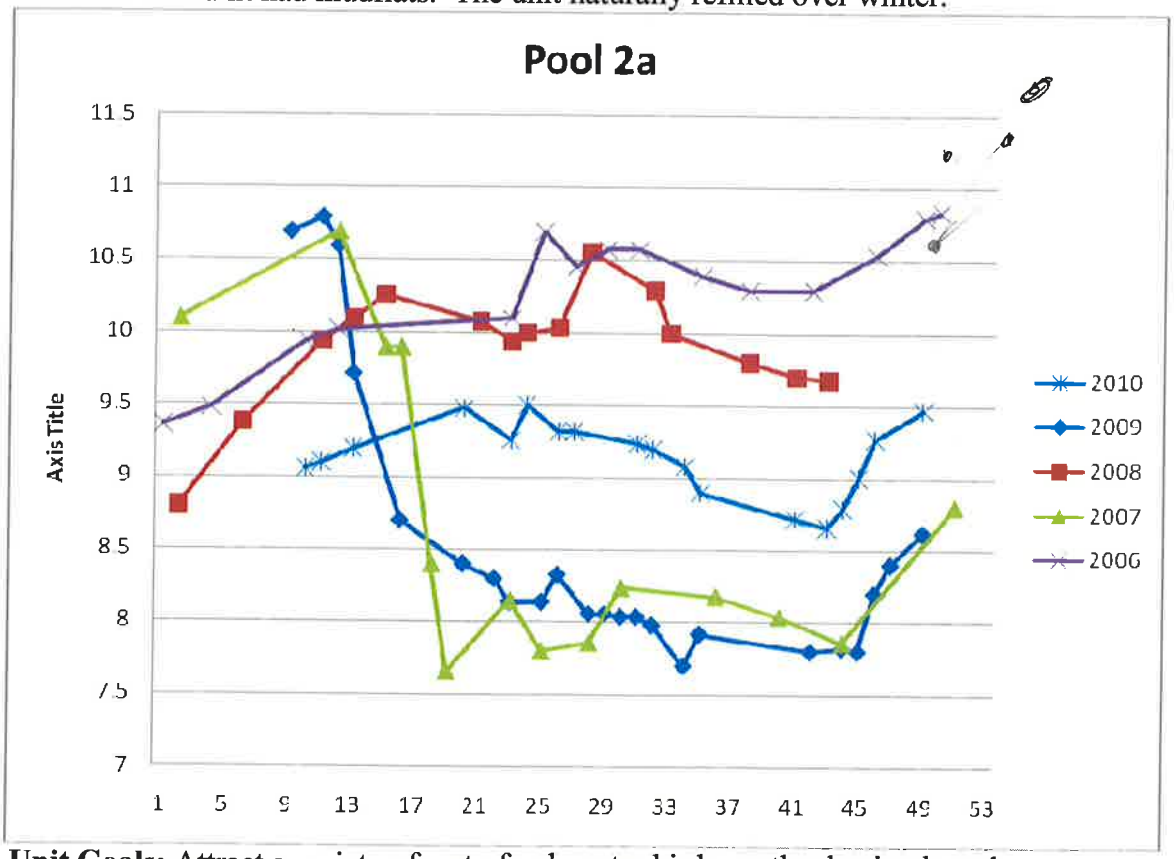
Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	10	2.00		
						Draw down once temperatures allow
0.9		13	Apr.			
0.3			May			
0		21				
		24	June 13			No Plate
		24	16			underwater
		25	24			underwater
		27	July 7			underwater
		32	Aug. 8			No gauge?
		35	Sept.			Reflood
			Oct.			
1.0-1.5						
			Nov.			
			Dec.			

Unit: Pool 2A

Acres: 65

2010 Activity: This unit had steady water levels most of the year. In November water was added from 8a gate. Good early fall shorebird use. In November, more water was added for fall dabbler use. Good dabbler and Goose use was observed. Draw down in 2009 allowed Phrag to expand around island and P.L in SE corner and around island. Spraying was conducted on P.L. and some Phrag. Not all Phrag was treated.

Draw Down Years: 2009 – April through August managed for mudflats & shorebird use, reflooded in November – excellent shorebird use and good response of nutsedge & nodding smartweed around island; 2007 – Pumped down by May and reflooded in July. Missed April shorebird migration, but excellent knodding smartweed, sedge, & millet response and fall duck use. 2004 – drawn down started late March, but it was August before 90% of unit had mudflats. The unit naturally refilled over winter.



Unit Goals: Attract a variety of waterfowl, water birds, wetland animals and invertebrates to provide opportunities for wildlife viewing.

Objectives: Establish more perennial vegetation. Manage against invasives.

Strategies: Maintain water levels shallow enough in spring to allow previous years perennials to regrow, but deep enough to minimize moist soils & invasive germination.

Management Strategy Constraints: It is difficult to remove high water. 8a must be drawn down at the same time, or a portable pump set up. Water must be added via 8a, or with a portable pump as well. Portable pumps take staff time to maintain and may conflict with other project priorities.

Repairs Needed:

III. To enhance water level management capabilities, a project to ditch MS 8A and install individual stop log structures to Pool 2A, 2B, and 2C is proposed.

Unit: **Pool 2a** - Majority of mudflats exposed at 7.66

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
9.5-9.7		10	10	.54	10.54	
			Apr.			Field check water level depths
		17	26	.90	10.90	
9.2		20	May 16	.98	10.98	
		21	26	1.06	11.06	
		22	31	1.10	11.10	
		23	June 10	0.96	10.96	Spray P.L.
				.86	10.86	
		25	24	.84	10.84	
		27	July 7	.84	10.84	11 0.81
		29	18	.70	10.70	
		30	25	0.90	10.90	
			Aug.			Spray Phrag
		32	8	.84	10.84	
		32	12	.78	10.78	
		35	31	10.64	10.64	
		36	Sept. 8	.77	10.77	9 - 0.84
9.0-9.2		41	Oct. 12	0.98	10.98	
		42	20	1.18	11.18	
		43	27	1.20	11.20	
		45	Nov. 7	1.17	11.17	
		47	21	1.23	11.23	
		51	Dec. 19	0.78	10.78	

Note: all gauge readings above 9 need 10 added to gauge reading

1/30 10.10

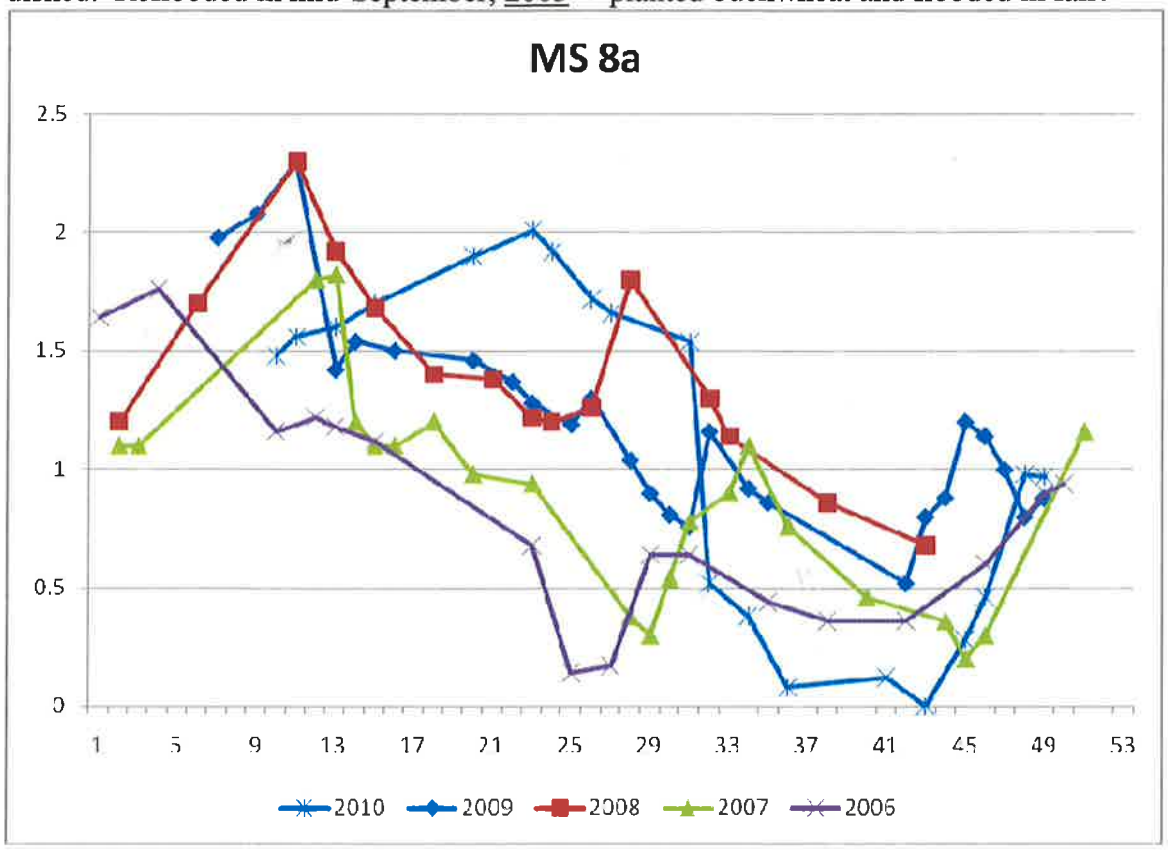
3/9 11.24

Unit: MSU 8A

Acres: 56

2010 Activity: Water was let out in August for DD. Began Reflooding in November.

Draw Down Years: 2010 –Water taken out of unit in August reflooded in November. 2009 – evapotranspiration resulted in mudflats on east side in August. Periodic pumping and mudflats occurred through mid October; 2004 – drawn down in March. Parts of unit disked. Reflooded in mid-September; 2003 – planted buckwheat and flooded in fall?



Unit Goal: Provide resting and foraging habitat for migratory birds.

Objectives: Encourage marsh vegetation and invertebrates.

Strategies:

Management Strategy Constraints:

Repairs Needed:

II. Catwalk needs raised 12"

Unit: **MS 8a**

open to 2a

Desired water level			2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	10	2.21	73.28	
			Apr.			
		17	26	2.3	73.40	
1.7		18	May 4	1.69	72.78	
		20	May 16	1.75	72.80	
		21	26	1.76	72.94	
		22	31	1.98	73.02	
1.5		23	June 10	1.76	72.82	
				1.66	72.73	
		25	24	1.60	72.68	
		27	July 7	.90	72.10	
		28	13		71.66	Pump On 15 72.15 pump off, open to Lake (high)
		29	18	1.30	72.38	19 72.55, closed
		30	25	1.56	72.65	
			Aug.			~~Draw down for shorebirds~~
		32	8	1.50	72.58	
		32	12	1.40	72.50	
		35	31	1.26	72.33	
		36	Sept. 8		72.48	
0.8-1.0		41	Oct. 12	1.62	72.70	
		42	20	1.86	72.94	
					72.929	
		45	Nov. 7	1.83	72.90	
		47	21		72.98	
		48	28	2.18	73.26	Open 5" at 1pm
		49	Dec. 5	1.98	73.06	closed
		51	19	1.93	73.00	

1/30 2.8 73.30

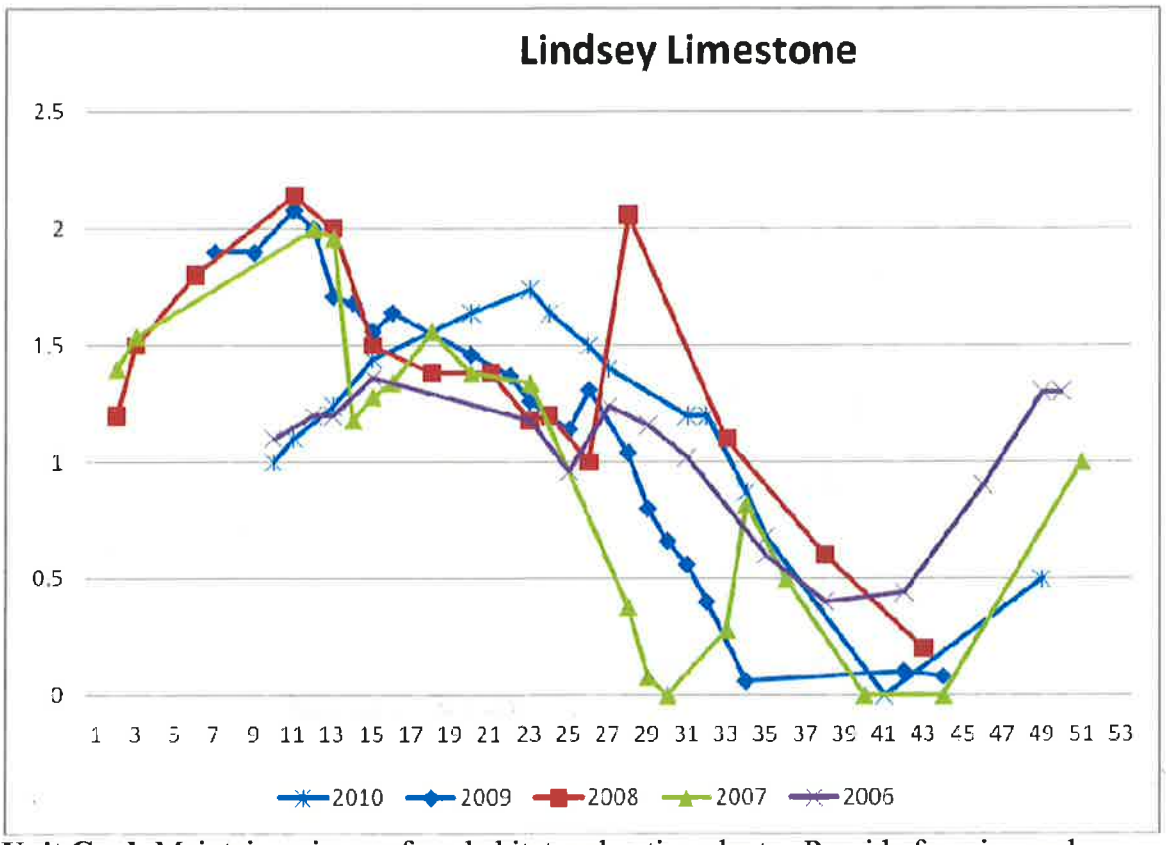
2.29 73.34

Unit: MSU LL

Acres: 27

2010 Activity: Water levels were under target early in the year but eventually were at right levels by April.

Draw Down Years: 2010- Starting in September water was below boards until December. 2009 – evapotranspiration resulted in late summer draw down (late July and August)



Unit Goal: Maintain unique refuge habitat and native plants. Provide foraging and nesting habitat for migratory birds.

Objectives: Maintain marsh conditions.

Strategies: Allow full pool in spring and evapotranspiration throughout the season.

Management Strategy Constraints: Unit floods easily from rains, resulting in dramatic water level changes. Approximately 1.3 unit floods north woods. Possibly broken outlet pipe to 8a pump box.

Repairs Needed:

I. Pipe to WCS is broken. Needs cut off & flushed out to allow for drainage.

Unit: **MS LL** - Possibly, 1.30 is full pool. Higher water backs up into north woods.

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	10	1.77		
1.3						
		17	Apr.			
			26	1.9		opened
1.3		17	29	1.5		
		17	30	1.2		closed
		20	May 16	1.3		
		21	26	1.42		
		22	31	1.5		
1.3						
		23	June 10	1.29		
				1.16		
		25	24	1.10		
		27	July 7	0.72		
		29	18	0.30		
		30	25	.68		
		32	Aug. 8	.58		
		32	12	.46		
		35	31	.11		
		36	Sept. 9	.24		
		41	Oct. 12	0.99		
		42	20	1.34		
		43	27	1.4		
		45	Nov. 7	1.58		
		47	21	1.44		
		48	28	1.72		
		49	Dec. 5	1.48	opened 12/6	330 12/7 930 1.35
				1.47		open 3:20pm

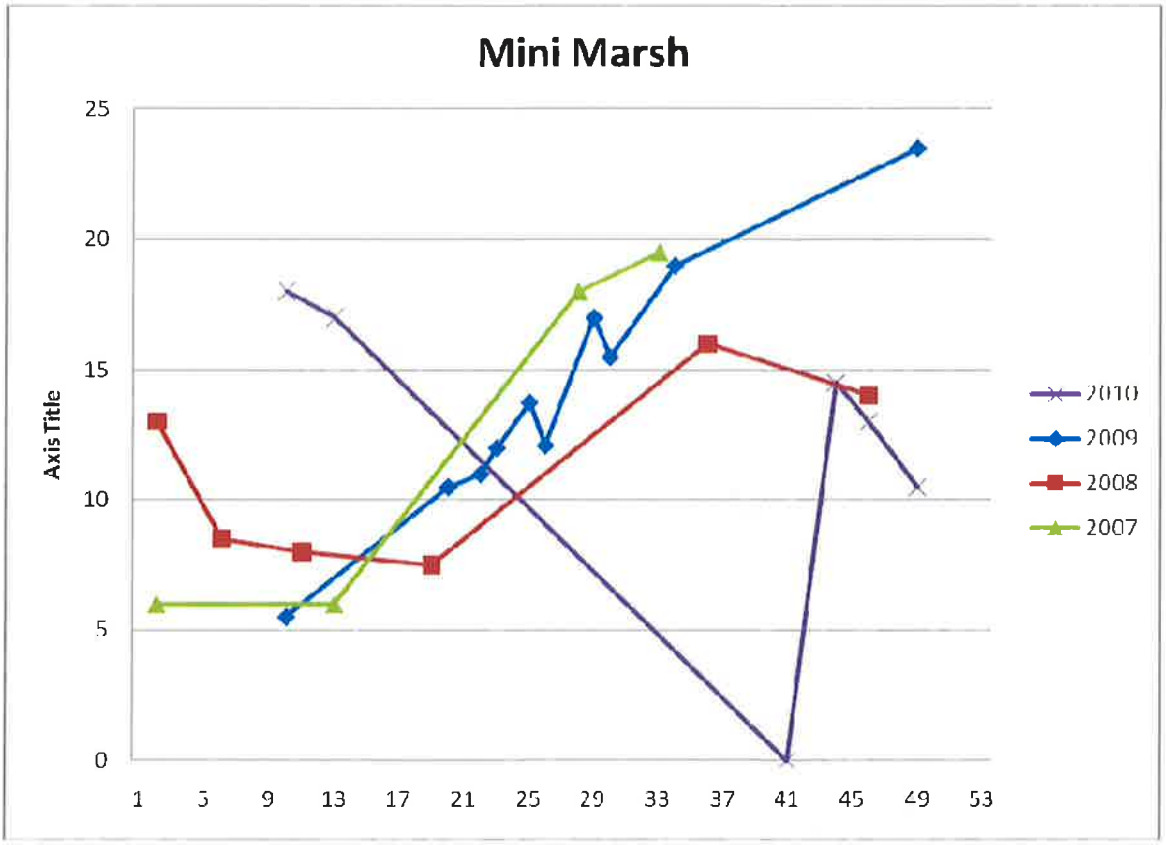
1/30 1.7

3/8 1.8

Unit: Mini Marsh

Acres: 30

2010 Activity: Minimarsh is used as a holding tank to pump up blind 93 in the fall. During this time water levels fluctuate highly until pumping is finished.



Unit Goal: Provide resting and foraging habitat for migratory birds.

Objectives: Maintain as hemi marsh.

Strategies: Possibly conduct spring burn.

Management Strategy Constraints: If water in unit gets much higher than half way up the side of the discharge pipe, water leaks through splitter box to Crane Creek. Needs new flap gate.

Repairs Needed:

III. Raise south dike – borrow from ditch and inside unit. This would allow for deeper water management capabilities and more diversity.

Unit: **Mini Marsh** - Measure from waters surface to top of splitter box.

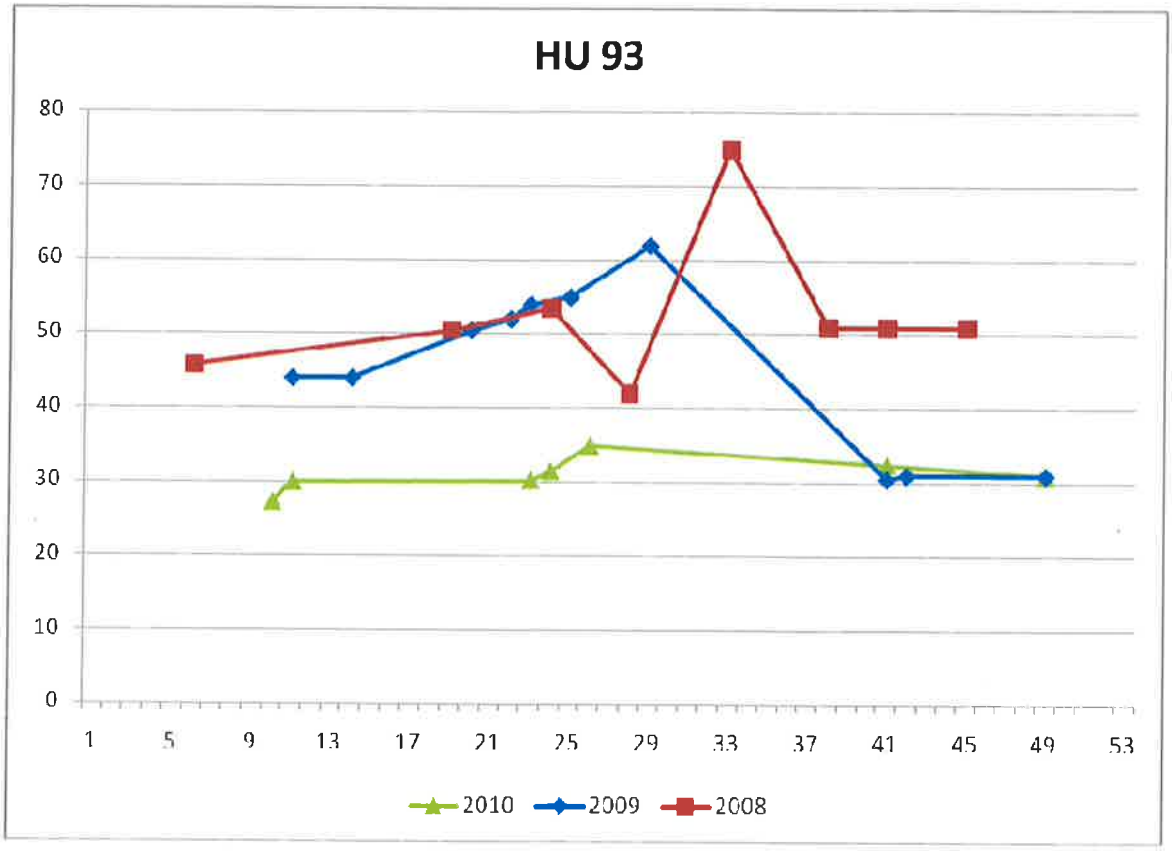
Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
		10	12	7½		
8"						
			Apr.			
8"						
		20	May 16	9"		
		21	26	8½"		Water very high in ditch, which is open to Creek
			June			
		26	28	15¼"		
			July			
		30	25	17⅝"		
			Aug.			
		35	29	22⅜		Pump on 315 8/30 1215 16¼"
						8/31 5:15 15¾ - pump off
		36	Sept. 8	14¼		
			Oct.			
		45	Nov. 7	14¼		
10"		47	21	16"		
			Dec.			

Unit: Hunt Unit 93

Acres:

2010 Activity: Evapotranspiration resulted in mudflats in mid-July. Phrag was broadcast sprayed and appeared to die. . Unit was reflooded in mid-September with a Thompson Pump and was at good water level for hunt season.

Draw Down Years:



Unit Goal: Provide resting and foraging habitat for migratory birds and provide a quality hunt unit.

Objectives: allow unit to establish good annual plant production.

Strategies: Will need to monitor for invasives, and possibly take more aggressive measures in management.

Management Strategy Constraints: This unit sits on high ground and flooding is costly & difficult.

Repairs Needed:

III. If this unit is maintained as a wetland, then the west and south dikes are in questionable shape & may degrade quickly with water against them year round. Consider rebuilding for better compaction, tile search, & higher dike tops.

Unit: **HU 93** - From waters surface to ~~middle brace~~ top of brace on screw gate. 32" is full pool

Measure on right side

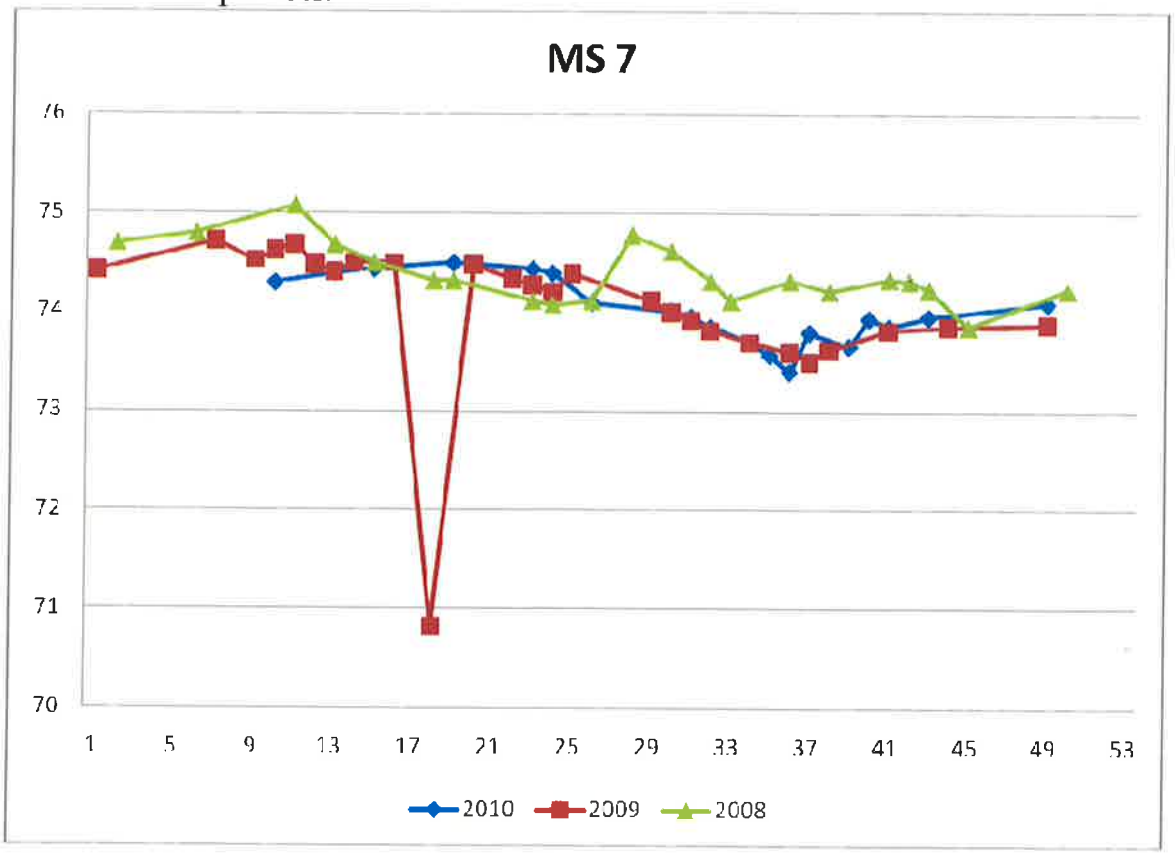
Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
31"		10	12	23"		
			Apr.	29"		
			May			
		20	16	27"		
			June			
		25	27	36"		
			July			
						Dry
						↓
			Aug.			
			Sept.	5		Started pumping during day - Wed & Thurs pumped thru night
		36		9 27¼"	Full	Added a 4" board - Turned pumps to 12 - 27½
		41	Oct.	2 27"		
31"						
31"		47	Nov.	21 25¼		West side + North side partial breach
			Dec.			

Unit: MSU 7

Acres: 94

2010 Activity: Water levels were good thoughout the beginning of the year. Started pumping into unit in September and again in October.

Draw Down Years: 2007 – previous fall draw down resulted in excellent spring bird use. Evapotranspiration led to saturated soils in June. Unit was flooded in late mid September when pump was replaced; 2006 – A draw down was attempted starting in May, but not achieved until mid July. Invasives were mowed and disked in early august. Unit was reflooded in mid August and managed for mudlflats. Unit was reflooded in September; 2005 – Drawn down in June for construction. Unit dry except ditch by July. Reflooded in September.



Unit Goal: Provide migratory bird foraging and resting habitat. In addition the transitional areas on 7B will allow for easily accessible upland habitat for nesting as well as provide a gradient of water levels.

Objectives: Manage water levels against invasives.

Strategies: Maintain full pool by pumping throughout year as needed and treat invasives.

Management Strategy Constraints:

Repairs Needed:

II. Krause Rd is too low in the SW corner and needs to be raised to allow to manage against invasives with deeper water levels.

Unit: **MS 7**– 3.14 on old gauge = 73.96 on new staff plate

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
3.5	74.32	10	12		74.70	Top of the plate
			Apr.			
3.5	74.32	17	2/6	3.9	74.70	
		20	May/6	3.7	74.51	
		21	26	3.75	74.56	Pump in, water still leaking out through pipe during
					74.38	
					74.28	
		25	June/4		74.28	
		~~26~~				
		28	July/1	4.0	73.80	13 73.77 Pump On 15 573.96
		29	18		74.12	pump on 19 74.30 pump off on 7/19
		30	25		74.40	
		32	Aug. 8		74.34	
		32	12		74.26	
		35	29		74.10	Pump on 4pm 3:30pm
		35	31		74.26	12pm 9/1 74.32, pump off
		36	Sept. 6		74.26	Pump On 2pm 7th - 74.36 - pump off
		36	8		74.52	Rain all night
		41	Oct. 12		74.49	
3.0	73.82	42	20		74.68	
		43	27		74.62	
		45	Nov. 7	3.72	74.52	Take off high water 11/14 started
		46	16		73.96	closed WCS
		51	Dec. 19		74.36	

1/30 74.5

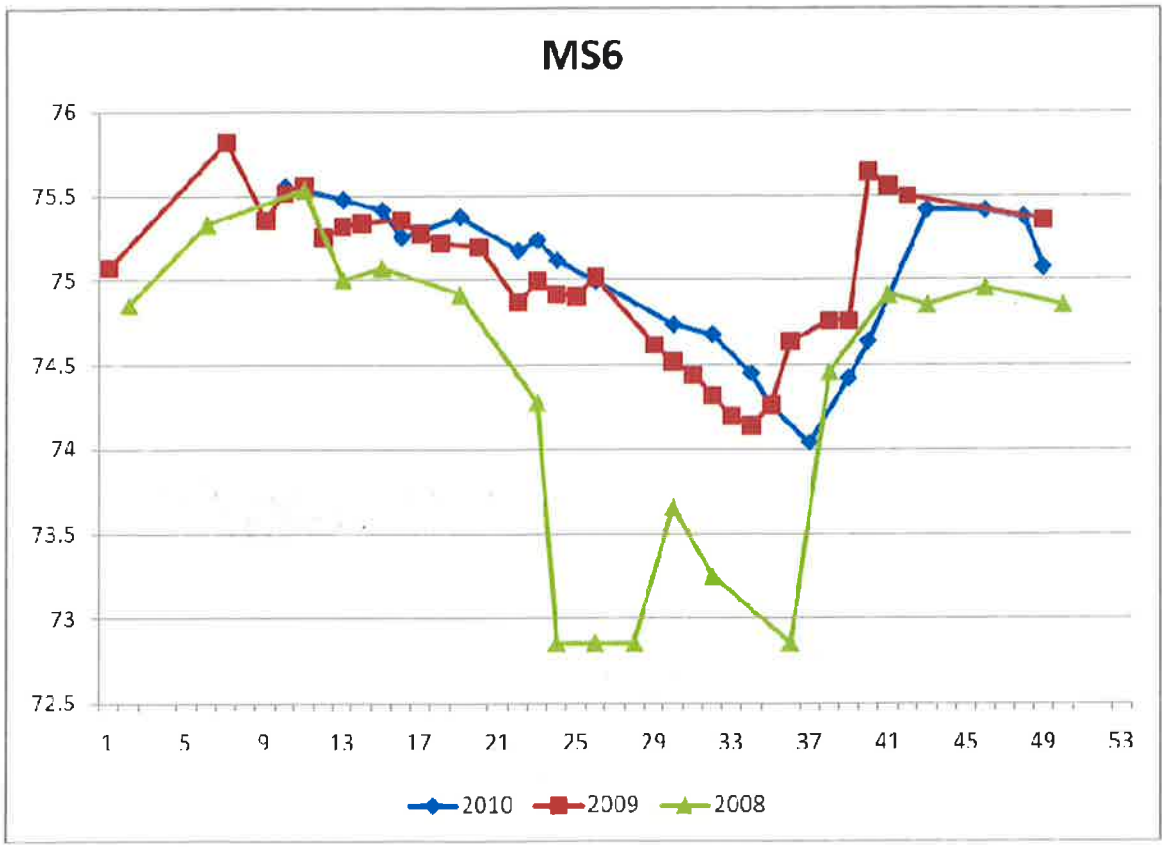
3/8 74.5

Unit: MSU 6

Acres: 70

2010 Activity: High water was taken off in March and April. HU6 was opened to MS6 through in October after construction was completed. In September, MS6 was flooded to flood HU 6. A new staff plate was installed in 2009 to reflect true elevations. 2.54 = 575.40.

Draw Down Years: 2008 – Drawn down for construction in early June. Reflooded in late July and again in September. 2006 – MS pump structure gate for MS6 leaked water out in early spring. Unit was then managed for mudflats and reflooded in Sept.; 2005 – Evapotranspiration led to mudflats in July. A hole in the north dike was repaired. The unit was reflooded in September.



Unit Goal: Provide foraging and resting habitat for migratory birds as well as brood habitat.

Objectives: Manage for hemimarsh conditions.

Strategies: Maintain full pool

Management Strategy Constraints: see repairs needed

Repairs Needed:

II. Screw gate in MS pump leaks. All gates in drop box need to be closed to maintain water in unit.

II. ditch along County Line Rd is not functioning at outlet in CC ditch that feeds the MS pump. Pipe may be collapsed, or silted in.

Unit: **MS 6**

Desired water level		Wk #	2011 Date	Actual Water level Staff reading	Notes
old	new			new	
			Jan.		
			Feb.		
2.4	75.26		Mar.		
		10	10	75.67	2.84 = old
			Apr.		
		17	26	75.38	2.59
		20	May 10	75.25	2.45 = old
		21	26	75.28	2.50
		25	June 10	75.00	2.22
		25	24	74.90	old 2.12
		27	July 7.		1.84 old new - under (below gauge
1.5	74.36	29	18.	below	1.58
		30	25		1.75 old
		32	Aug. 8	below	.96
					pumped water out
					↓ Drawdown for pipe fix
					↓ 12- open to free flow to Lake, 3rd rain last week
			Sept.		
1.5	74.36				
		41	Oct. 12	75.36	Started flooding End. Sept
		42	20	75.80	
				75.79	Take high water off before ice up
		45	Nov. 7	75.73	75.50. 17 = 75.55, open full 1140 75.28 - 18" 3 pm
					75.30
		47	22	74.77	- Done Taking water off 28 75.24 74.97
		48	Dec. 2	74.98	closed, good level for Trap
		51	19	75.36	

MS outlet to ditch, bottom of gate off track
8:15am Dec 22 75.40 - open full

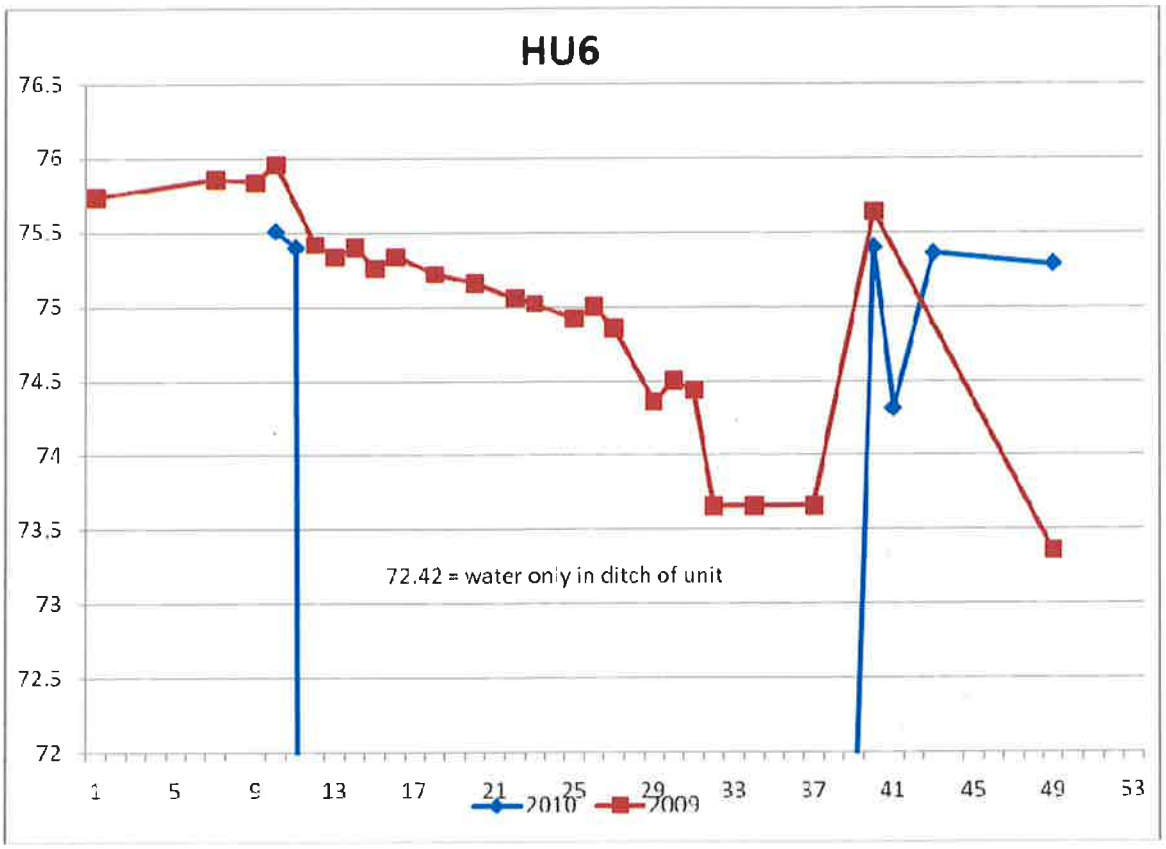
Tile under road, 1" above 33
- east side of road

1/30 75.50
3/8 75.3

Unit: Hunt Unit 6

Acres:

2010 Activity: Water was taken off in March & April via MS 6, into C.C. Construction was done on North and West dikes. Was dry from May till early October and was reflooded through MS6.



Unit Goal: Provide foraging and resting habitat for migratory birds as well as provide a quality hunting area.

Objectives: Manage for good annual plant production and establishment of some perennial vegetation.

Strategies: Repair west dike. Draw down in coordination with construction.

Management Strategy Constraints:

Repairs Needed:

I. West dike leaks & floods private land owners crop field. Needs repaired ASAP.

I. Coffer dam in MS ditch needs removed for drainage, eagle's nest will delay construction activities.

Unit: **HU 6** - Full pool 575.40? HU 6 is suitable for fall waterfowl when the unit is equalized with MS6 at 575.40 or 2.54 according to the old gauge.

Desired water level	Wk #	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Mar.		
	10	10	75.36	
		Apr.		
	17	26	75.40	opened for shorebirds
	18	May 6	75.10	
	20	May 16	75.15	open date inch / closed date?
	21	23	75.09	
	22	26	75.18	
		June		
	26	28	~74.65	Below plate, estimate Open to Ditch drawdown to finish construction
		July		
			Drawdown	
	32	Aug.		
	35	31		Open Gate to ditch, gravity flow water from MS2
		Sept. 6		Pumps running
				Begin flooding hunt unit
	39	27	75.33	
75.40?	40	Oct. 3	75.36	
	43	27	75.74	
	45	Nov 7	75.70	
	47	21	75.58	
	49	28	75.66	
	51	Dec 19	75.36	

1/30 75.40

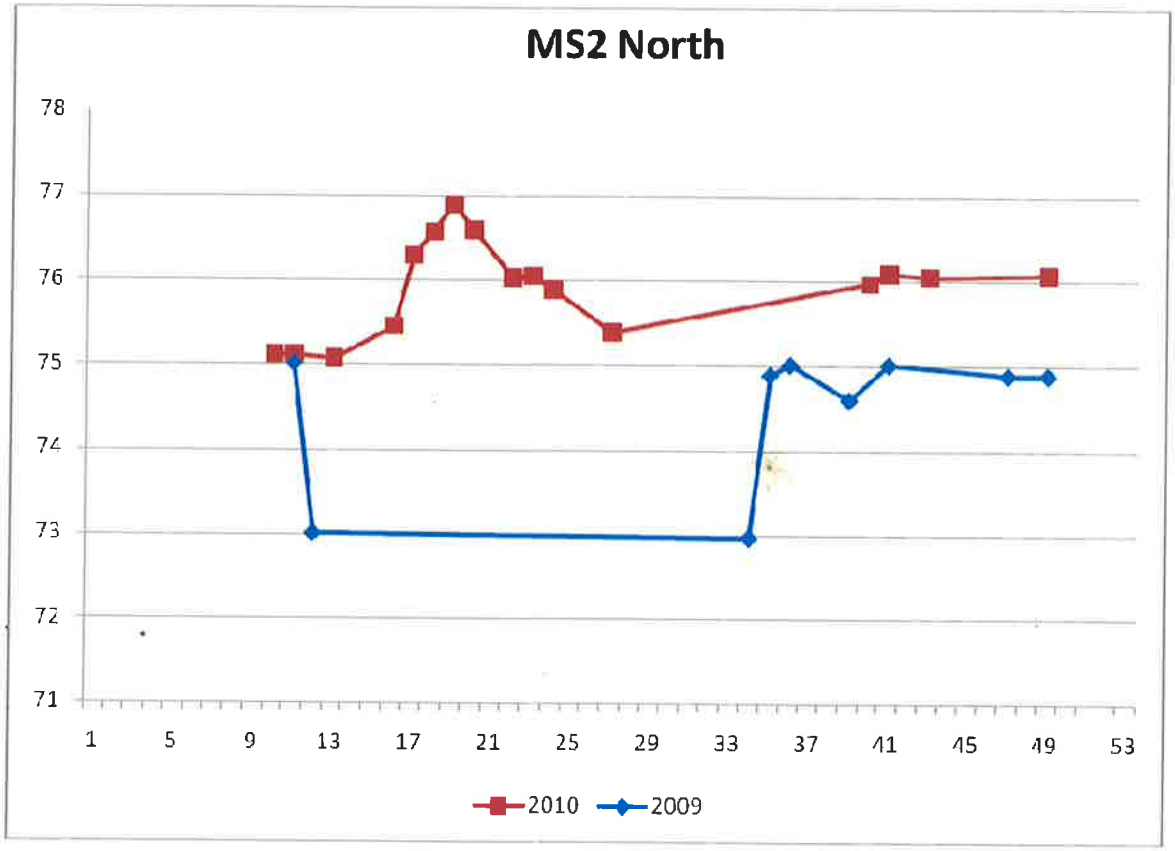
3/8 75.30

Unit: MS 2 North

Acres:

2010 Activity: Water was pumped into the unit in May and found a broken tile which is allowing water to leak out of unit. Lots of duck use in the early part of the year. Pumped turned back on in September for waterfowl season.

Draw Down Years: 2009 – March through mid August.



Unit Goal: Provide foraging and resting habitat for migratory birds as well as provide a quality hunting area.

Objectives: Manage for good annual plant production and establishment of some perennial vegetation.

Strategies:

Management Strategy Constraints:

Repairs Needed:

II. Unit leaks into rail unit and west ditch when flooded.

Unit: MS2 North

Desired water level	Wk #	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Mar.		
76-77		Apr.		
		May		
76.0		June		
	26	28	75.86	
	27	July 7	75.56	
	29	18	75.26	
	30	25	75.44	
	32	Aug. 8	75.46	
	32	12	76.24 — ?	
	35	31	Below gauge — 75.10 bottom of gauge at ground level, and 95 [illegible]	
	36	Sept. 6	-Pump On auto Good Millet production	
	37	12	75.95 - pump on — 28521 meter reading 13 76.05 15 76.24	
	~~38~~			
	39	27	77.31	Pump off, gate closed
~~75.0~~	41	Oct. 11	77.02	
	45	Nov 7	76.84	
	47	21	76.74	
	48	Dec 2	77.08	

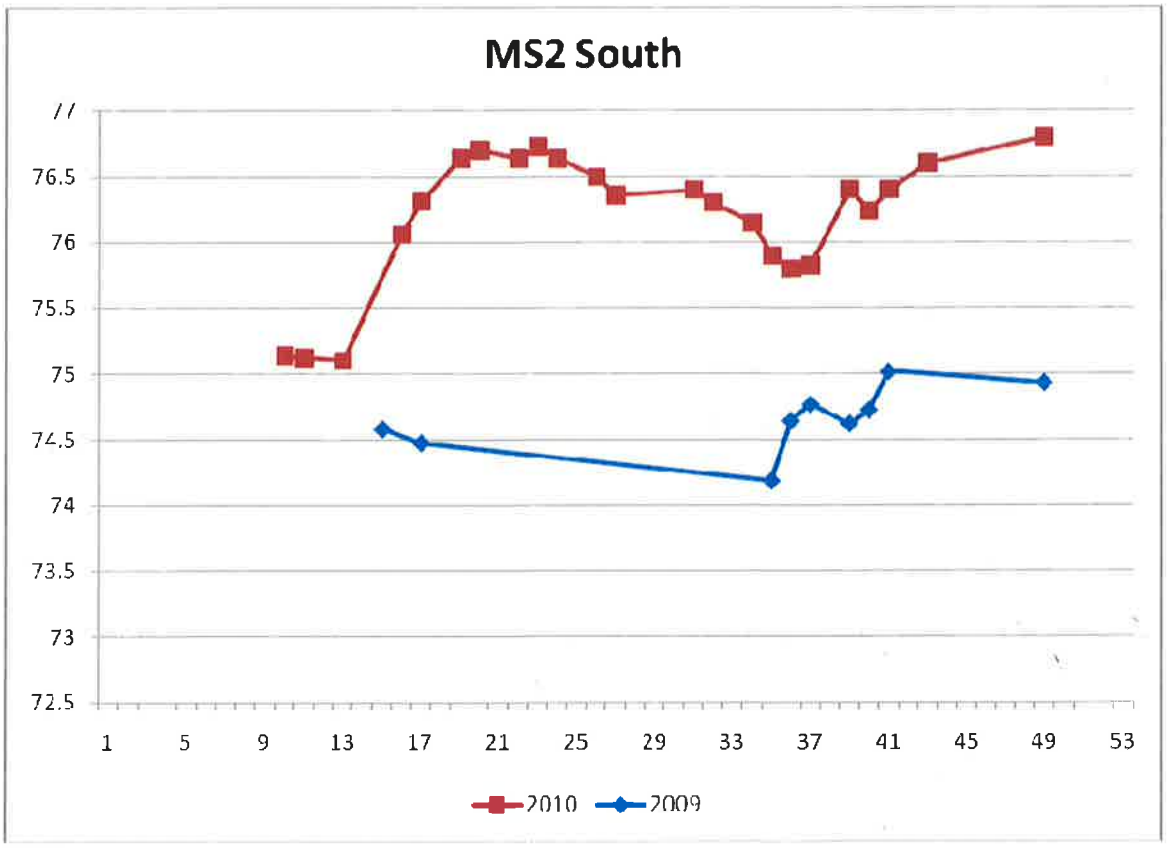
1/30 77.96

Unit: MS 2 South

Acres:

2010 Activity: Water level was constant from march September. Tried to put water in unit though MS ditch but were unable to do so because ditch wasn't high enough. The west half of the unit that is higher had lots of annual grass germiniation (foxtail, timothy, panic grass) and no real problem species.

Draw Down Years: 2009 – March through mid August.



Unit Goal: Provide foraging and resting habitat for migratory birds as well as provide a quality hunting area.

Objectives: Manage for good annual plant production and establishment of some perennial vegetation.

Strategies:

Management Strategy Constraints:

Repairs Needed:

Unit: **MS 2 South**

Desired water level	Wk #	2011 Date	Actual Water level Staff reading	Notes
		Mar.		
76.0				
		Apr.		
76.0		May		
	24	June 14	76.94	
	25	24	76.84	
	27	July 7	76.56	
	29	14	76.28	
	30	25	76.43	
	32	Aug. 8	76.34	
	32	12	76.22	
	35	31	75.99	80% of unit is dry
	36	Sept. 9	76.18	12 - 76.34 pulled 2 boards to allow flow in when pump is on
	39	27	76.64	
~~75.5~~ 76	41	Oct. 11	76.62	~1" water North Middle interseam, Millet
	45	Nov. 7	76.96	
	47	21	77.02	
	48	Dec 2	77.42	

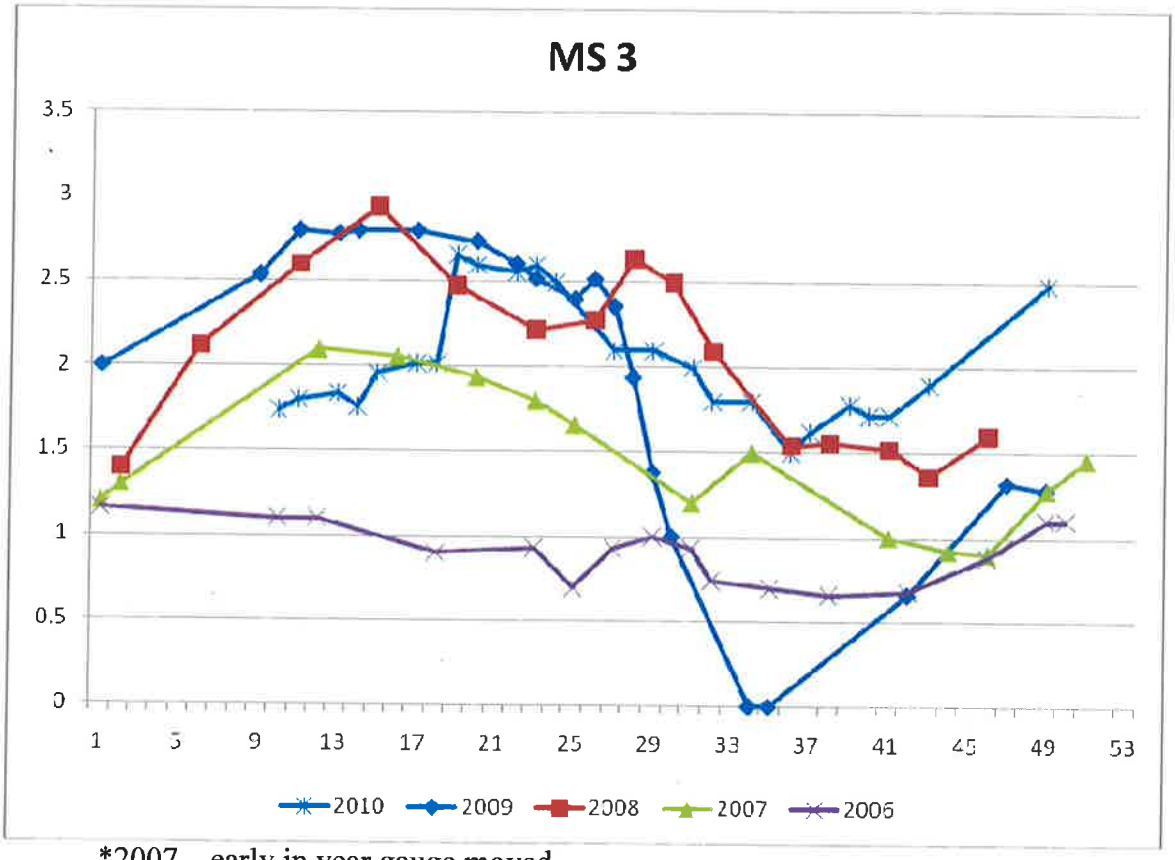
76.95

Unit: MSU 3

Acres: 225

2010 Activity: Water was added to the unit by pump in May but was maxed out of MS ditch at 2.6. Due to leaking boards and evaporation the unit went down to 2.10 and the west end was dry. At the end of the year boards were set to full pool.

Draw Down Years: 2009 – drawn down July 13 through October 21 for construction & fall shorebird migration. Excellent shorebird use & good germination of millet, but too late to flower.



*2007 – early in year gauge moved.

Unit Goal: Provide a nesting and feeding area for migratory birds as well as brood habitat.

Objectives: Maintain as hemi marsh. Provide emergent and submergent marsh habitat for waterfowl, swans, and rails.

Strategies:

Management Strategy Constraints:

Repairs Needed:

II. All dikes need muskrat damage repaired.

III. Leak stop log structure dikes smoothed out.

Unit: **MS 3**

Desired water level		Wk #	2011 Date	Actual Water level Staff reading	Notes
old	new			new	
			Jan.		
			Feb.		
			Mar.		
		10	12	3.2	
2.5					
			Apr.		
		17	26	3.1	
		20	May 6	3.0	
		21	26	3.05	Water flowing over boards
		24	June 13		NO PLATE
		24	16	2.76	
		25	24	2.69	
		27	July 7	2.40	
		29	16	2.36	
		30	25	2.37	
		32	Aug. 8	2.32	
		32	12	2.20	
		35	31	2.08	
		36	Sept. 8	2.25	9-2.34 - Need to Add board b/c of pumping ditch Flowing over boards. up
2.3		39	27	2.48	
		40	Oct. 3	2.48	
		41	12	2.45	
		42	20	2.68	
		43	27	2.68	
		45	Nov. 3	2.64	
		47	21	2.69	
		51	Dec. 19	3.05	- Flowing out

11/30 3.1

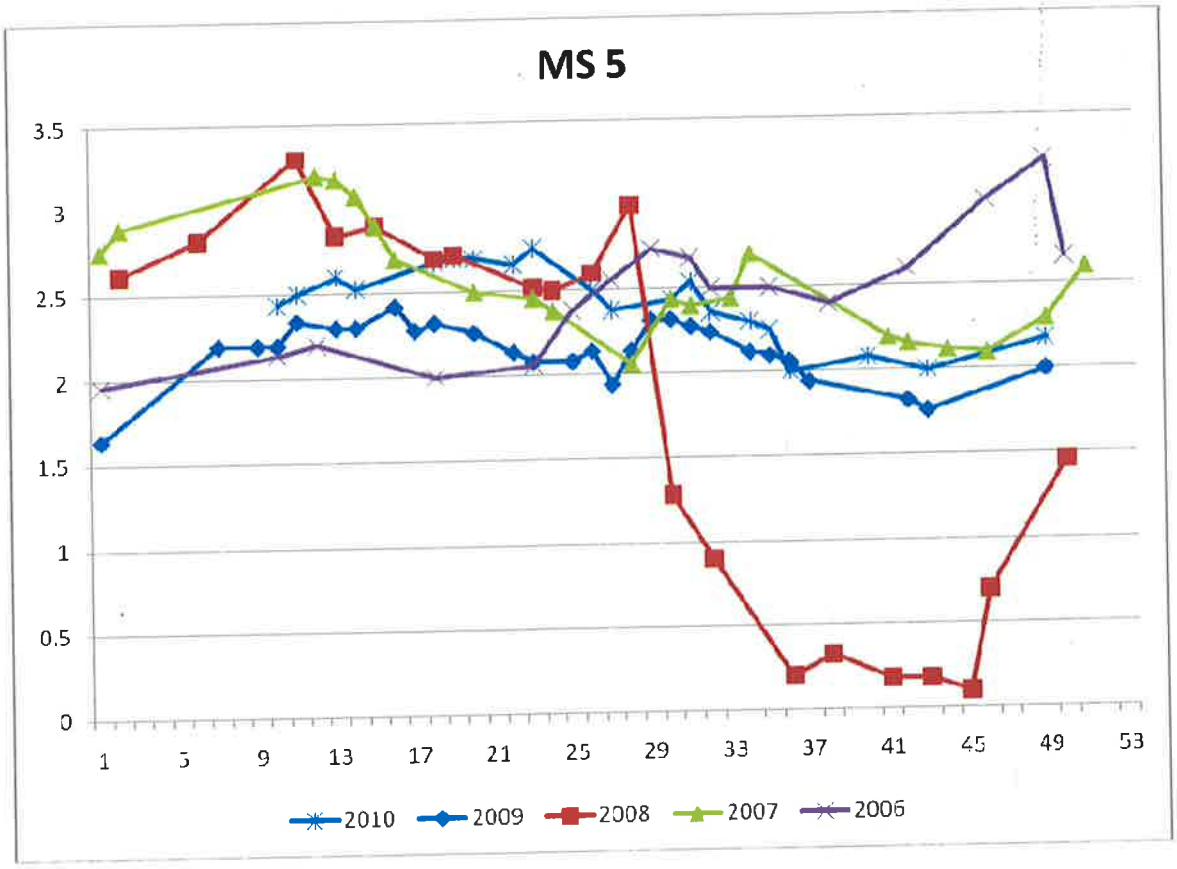
3/6 3.0

Unit: MSU 5

Acres: 256

2010 Activity: Water was added to unit to hold water for HU6 in March. Heavy waterfowl use in October with water at 2.0.

Draw Down Years: 2008 – drawn down in early July and dry on the west side by August 1 for construction on west dike. Excellent shorebird use on eastern half of unit. Reflooded in early November; 2005- Drawn down in mid-March and reflooded in September when able (low lake levels were a problem for pumping)



Unit Goal: Provide a resting and feeding area for migratory birds.

Objectives: Manage for hemimarsh conditions and prevent further establishment of Purple Loosestrife.

Strategies:

Management Strategy Constraints:

Repairs Needed:
III. Monitor SW screw gate for leaks

Unit: **MS 5**

Desired water level		Wk #	2011 Date	Actual Water level Staff reading	Notes
old	new			new	
			Jan.		
			Feb.		
			Mar.		
		10	12	2.9	
2.5-2.7					
			Apr.		
		17	20	3.10	opened 2 inches
		18	May 4	3.2	Open 3" May 9 3.02 May 12 2.98
2.5		20	May 16	2.94	
		21	23	2.70	Closed, still leaking
		21	26	2.82	
		23	June 10	2.68	
		24	16	2.60	dirty, date?
		25	24	2.58	
		27	July 7	2.44	Guess? Can't read, too dirty
		29	18	2.14	21 2.19
		30	25	2.10	N gate open 8" for Fall shoreline drawdown
					1.84 7/28 330, open 6"
		32	Aug. 8	1.38	sideways/slanted
		32	12	1.18	
		35	30	0.88	open 3" 4pm 31 0.86 at 1230, but
		36	Sept. 8	~1.06	ditch up from #54 leak, probably flowed back
		36	9	~1.15	in overnight. 9/1 0.85
		37	12	1.08 - open to	Lake 1" feet, flowing, CC at - 571.84 13-92 1030
					15-94 pump on 1030
2.0-2.2		40	Oct. 3	0.68	
		41	12	0.54	0.30 Oct 17 (strong SW wind
		42	20	0.72	
		43	27	.90	
		45	Nov. 7	0.30	
		46	15	0.36	at 12pm
		47	21	0.38	250 dumpin 28 0.81 - open to Ditch 5, flowin
		48	Dec. 2	1.72	closed
		51	19	1.90	

seep near North end of Bowman, spring? - from #54? - appears minor

2.10

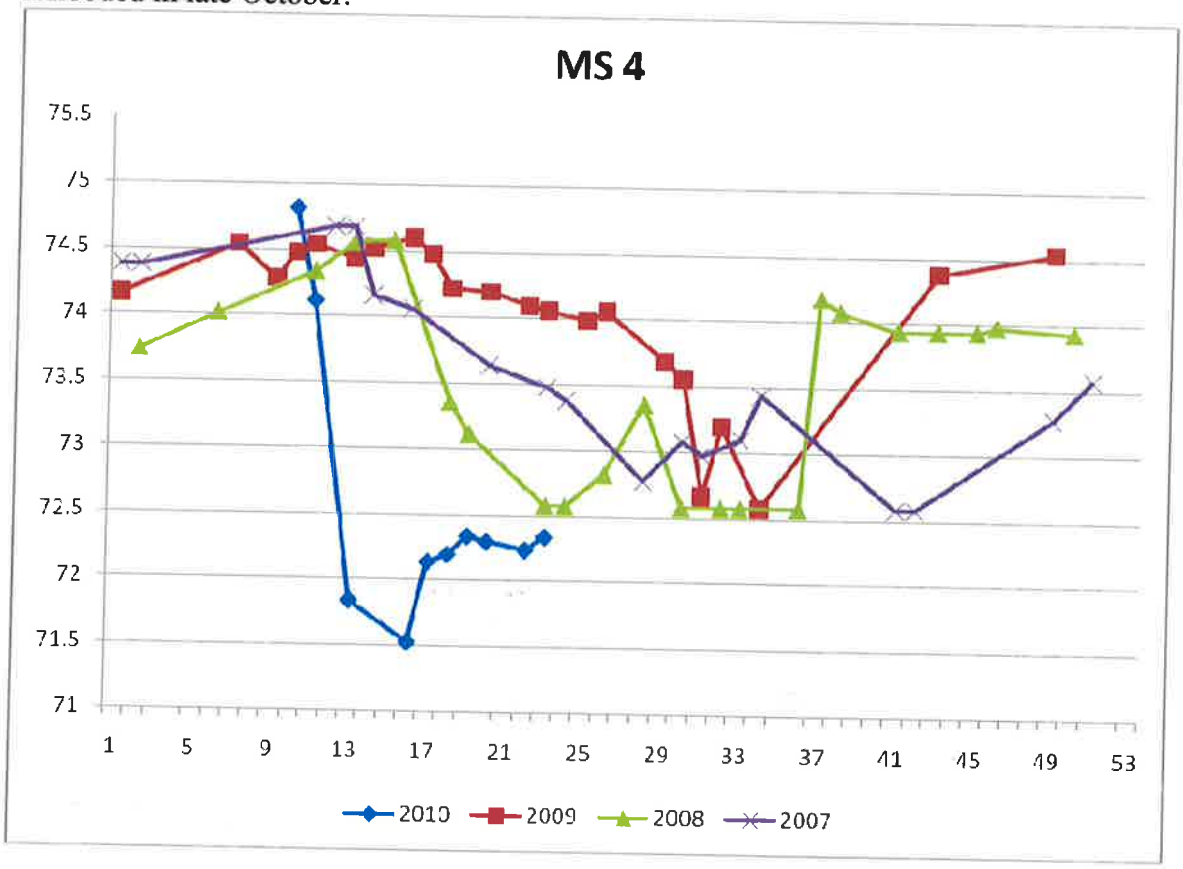
3/6 2.9

Unit: MSU 4

Acres: 112

2010 Activity: The water control structure has replaced but staff gauge was off by 9/10ths the staff gauge was reset in April. Extensive amounts of flowering rush and Phrag. There is currently no staff gauge in this unit because of an issue with construction.

Draw Down Years: 2009 – leaking structure resulted in a draw down in July through late October. 2008 – Vandalism of the NE screw/flap gate drew water levels down in early April. The unit was then managed for spring shorebird habitat, and reflooded in early September. Excellent shorebird use and millet germination. 2007 – Evapotranspiration resulted in a partial drawdown in July and again in September through November. 2004 – Drawn down in April for shorebirds and to encourage aquatic veg, reflooded in late October.



Unit Goal: Provide a nesting and feeding area for migratory birds as well as brood habitat.

Objectives: Repair east dike/road.

Strategies: Draw down in early spring for construction and flood immediately. Maintain high water levels to combat flowering rush and other invasives.

Management Strategy Constraints:

Repairs Needed:

Unit: **MS 4** 72.88- water only in ditch and low areas on north side. 73.98 required to have water across whole unit (2" on high ground of west side)

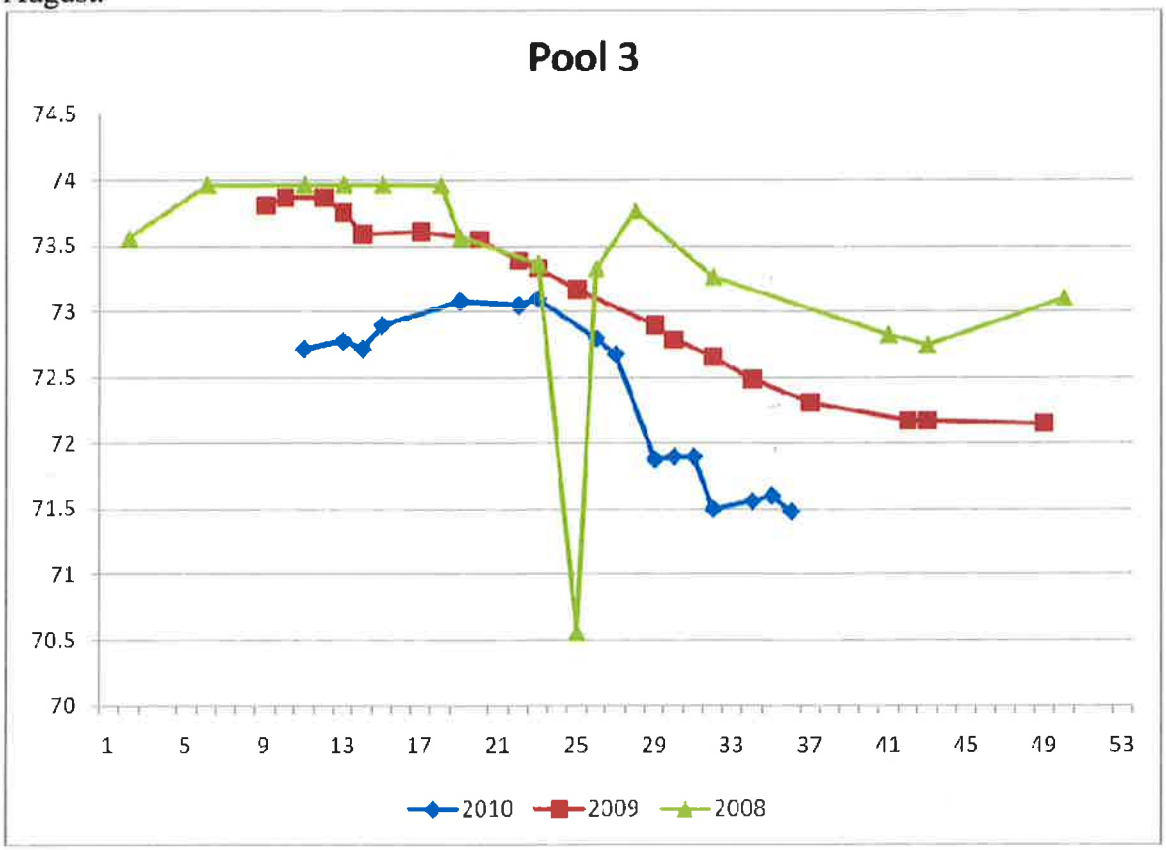
Desired water level		2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Feb.		
		Mar.		
		12		NO PLATE
				~~Draw down for construction~~
		Apr.		
		May		
		26		~~Reflood~~ Water flowing over boards
75.0		June 10		NO PLATE
		16		No plate
		29		"
		July		
		25	30 4/8"	NW Corner top of structure to water, 6 7/8" below board
		Aug.		
		30		Structure failed while trying to fix leak, bottom track may be broken, structure installed wrong way for head pressure, water out 1/2 pipe full
		Sept.		
74.38		Oct.		
		Nov.		
		Dec.		

Unit: Pool 3

Acres: 240

2010 Activity: Water was let out of unit in September for a drawdown. We were hoping to burn unit but weather did not allow for it. A new staff plate was installed. 72.2 = 1.63. (72.2=572.2ft)

Draw Down Years: 2010 – Drawdown from October till current. 2009 – Evapotranspiration resulted in low water levels, with water only on eastern half in mid August.



Unit Goals: The primary objective of this unit is to provide food resources and resting cover for migratory waterfowl, waterbirds, nesting Bald Eagles and other wetland animals. In addition water levels are managed to encourage native wetland plants and discourage exotic invasive species.

Objectives: Manage for hemi marsh conditions.

Strategies: Draw down & conduct a late summer burn to remove leaf litter and make areas more accessible to migratory birds. Reflood for fall shorebirds.

Management Strategy Constraints:

Repairs Needed:

Unit: **Pool 3 -** (72.2=1.63)

Desired water level	Wk #	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Feb.		
		Mar.		
	10	12	72.79	2.2 = old Set to flow east + pumped Env. Planned spring burn + shoreland habitat
73.87 -				
74.17		Apr.		
	17	26	72.00	1.48
	17	27	72.08	Holes developing in WCS pipe
	18	May 4	72.02	May 9 71.85 May 11 71.74 May 12 71.76
	20	May 16	71.90	1.39
	21	26	72.08	1.55 Closed, lake to high too much rain to keep water down
	23	June 10	72.20	1.68
	24	16	72.12 new	1.56
	25	24	72.08	1.50
	27	July 7	71.84	Draw Down? 1.30 Snapping Turtle in Pump
	29	18	71.64	1.09
	30	25	71.80	
	32	Aug 8	71.76	1.24
	32	12	71.70	1.98
				Burn?
	35	31	71.55	
	36	Sept 8	71.74	
	41	Oct. 12	72.03	
72.67	42	20	72.26	1.72
	43	27	72.30	1.8
	45	Nov. 8	72.34	
72.67	47	21	72.44	1.90
	49	Dec. 5	~73.10	
	57	19	73.20	2.68

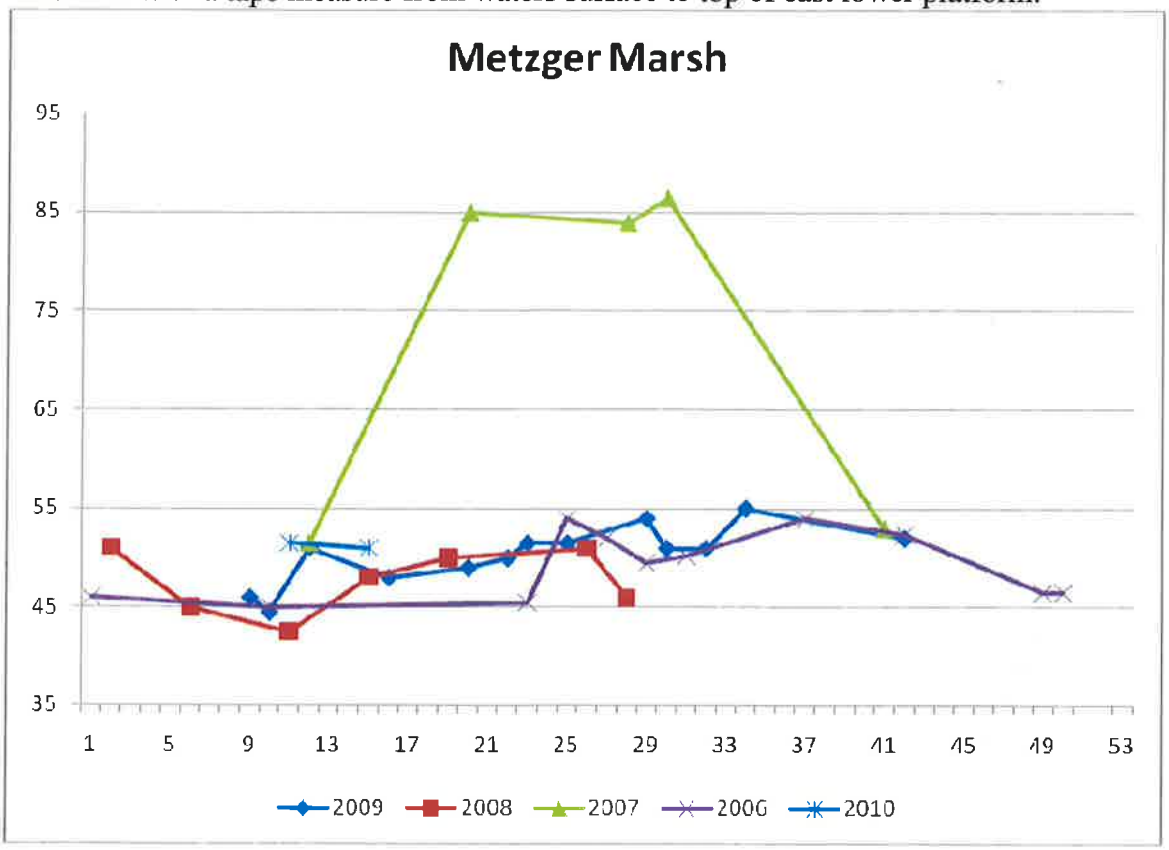
73.48 2.1

73.60 3.0

Unit: Metzger Marsh

Acres:
2010 Activity: N/A for 2010
Draw Down Years: 2007 – Drawn down by mid May and reflooded in September; 2004 – Drawn down mid-May and reflooded early August.

For chart, remember high water number readings, mean lower water levels. Water is measured with a tape measure from waters surface to top of east lower platform.



Unit Goal:

Objectives:

Strategies: Allow fish passage after trapping season and as soon as ice thaw allows. Close gates by June 1.

Management Strategy Constraints:

Repairs Needed:

Unit: **Metzger Marsh** - Measure from waters surface to top of lower platform on unit side. Maintain full pool for control of invasives.

Desired water level		Wk #	2011 Date	Actual Water level Staff reading		Notes
old	new			old	new	
			Jan.			
			Feb.			
			Mar.			
50"						
			Apr.			
			May			
			June			
		26	28		47½"	
			July			
		32	Aug. 12		52¼	
		35	31		54½	
			Sept.			
			Oct.			
			Nov.			
			Dec.			

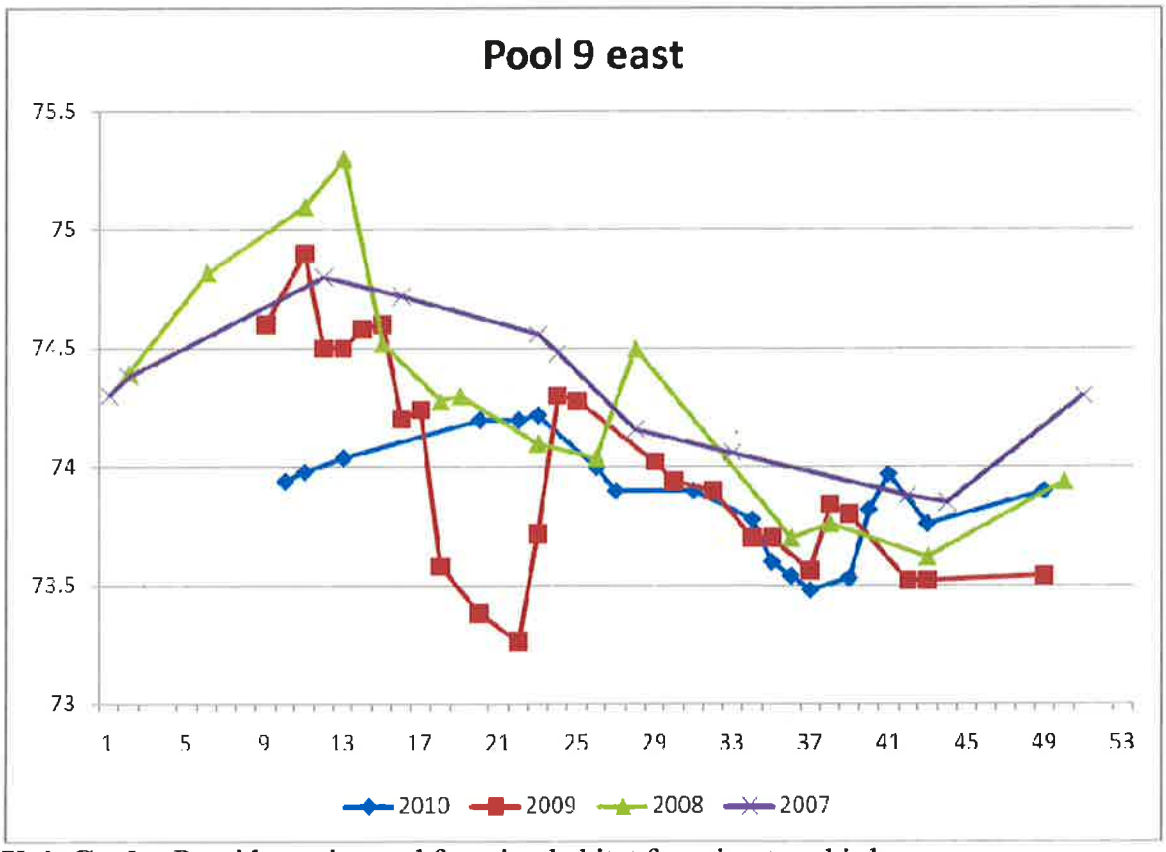
Gauge on outside on Pump Structure
.3 full pool - 24" avg, 6" on back, 7½ on deep.

Unit: Pool 9 East

Acres: 77

2010 Activity: No water was pumped in or out of this unit through 2009. Water levels fluctuated slightly but I think 75.3 is too high for this unit in April. A new staff plate was installed. 1.32=73.62.

Draw Down Years: 2009 – drawn down for 1 month (mid may through mid June) for construction. Reflooded in June. Evapotranspiration resulted in low water levels and small areas of mudflats through the fall; 2006 – March draw down for April burn. Reflooded in April after burn with portable pumps. Flooding took longer than expected and unit greened up before flood. Reed canary grass was sprayed a few weeks after.



Unit Goals Provide resting and foraging habitat for migratory birds.

Objectives: Manage for hemi marsh conditions.

Strategies: Maintain full pool.

Management Strategy Constraints:

Repairs Needed:

Unit: **Pool 9 east** - 73.6 = 2" or less over most of unit (excluding borrow area)

Desired water level	Wk #	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Feb.		
		Mar.		
	16	12	74.68	
74.8?		Apr.		
	17	26	74.60	2.40 = old
	20	May 14	74.62	2.48
	21	26	74.74	2.56 LEB, MAUK
	18	4	74.59	
	23	June 10	74.60	
	24	16	74.52	
	25	24	74.44	
	27	July 7	74.30	
	29	18	74.02	
	30	25	74.18	
	32	Aug. 8	74.12	
	32	12	74.04	
	35	31	73.90	
	36	Sept. 8	74.06	
>73.6	41	Oct. 12	74.28	
74.0?	43	27	74.49	
	45	Nov. 8	74.47	
	47	21	74.50	
	48	29	74.86	Open 6" Dec 1 closed 74.38
	49	Dec. 5	74.42	
	51	19	74.54	

11/30 74.79

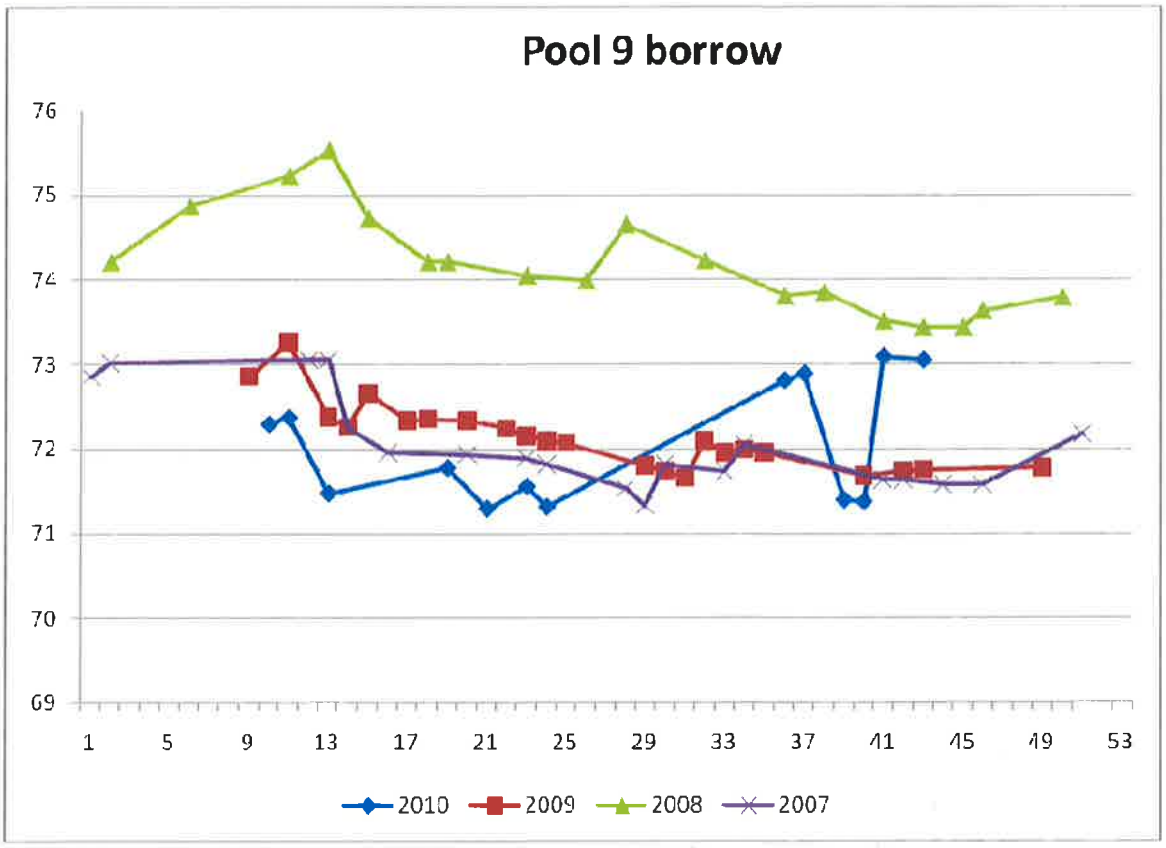
318 74.9

Unit: Pool 9 borrow area

Acres: 38

2010 Activity: Great waterfowl use in March thousands of ducks used this unit. Pump did not work in May to keep water in unit so unit was pretty low until October. A new staff plate was installed, 1.62=71.88.

Draw Down Years: 2005 – Unit was dewatered by mid-May. Good veg response. Unit was reflooded in September, but had difficulties with ditch veg clogging intake, and low lake levels.



Unit Goals: Provide habitat for waterfowl, wading birds, and shorebirds. Provide public use waterfowl hunting opportunities.

Objectives: Obtain 19 acres of deep to shallow submergent vegetation and 19 acres of deep to shallow emergent vegetation. Control Eurasian watermilfoil. Maintain 3 water blinds for waterfowl hunting season.

Strategies:

Management Strategy Constraints:

Repairs Needed:

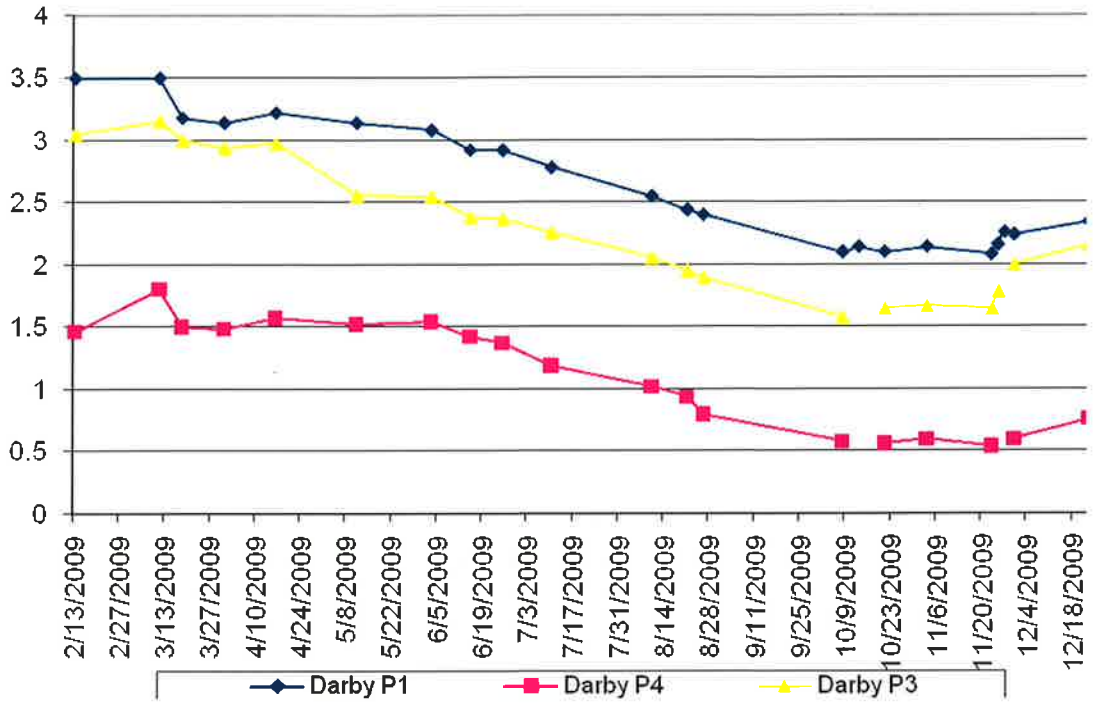
Unit: **Pool 9 borrow area** (1.62=71.88)

Desired water level	Wk #	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Feb.		
		Mar.		
	10	12	72.70	2,500 Ducks (Redhead, Bufflehead, Ringnecked, goldeneye)
71.96(1.7)				
		Apr.		
	17	26	71.96	1.7=old ? 8
	17	27	73.28	Open 4" at 1030
	18	May 4	72.46	Still open
	20	May 16	72.42	~~Pump unit down~~ closed?
	21	26	72.54	2.36
				~~Mudflats~~
		June		
	26	28	72.28	~2.08
		July		
	30	25	72.02	
	32	Aug. 12	71.88	1.70
				~~Reflood~~
	35	31	71.72	
	36	Sept. 8	71.90	
	41	Oct. 12	72.18	open WCS 7" to lower water level, near lake level
71.06	42	17	71.78	
	43	27	72.01	
	45	Nov. 8	72.08	17 72.10 open full 1700, CCO 571.36, 18 72.00, pumps on 1593 71.96 at 1730
				11/21 1pm pumps on 22nd 71.87
	48	28	71.68 - pumping	
		Dec.		
	51	19	71.91	

1/30 72.36

3/8 72.61

Darby



Key for Priority Rankings under "Repairs Needed section"
I – Urgent & Important
II – Not Urgent, but Important
III – FYI only

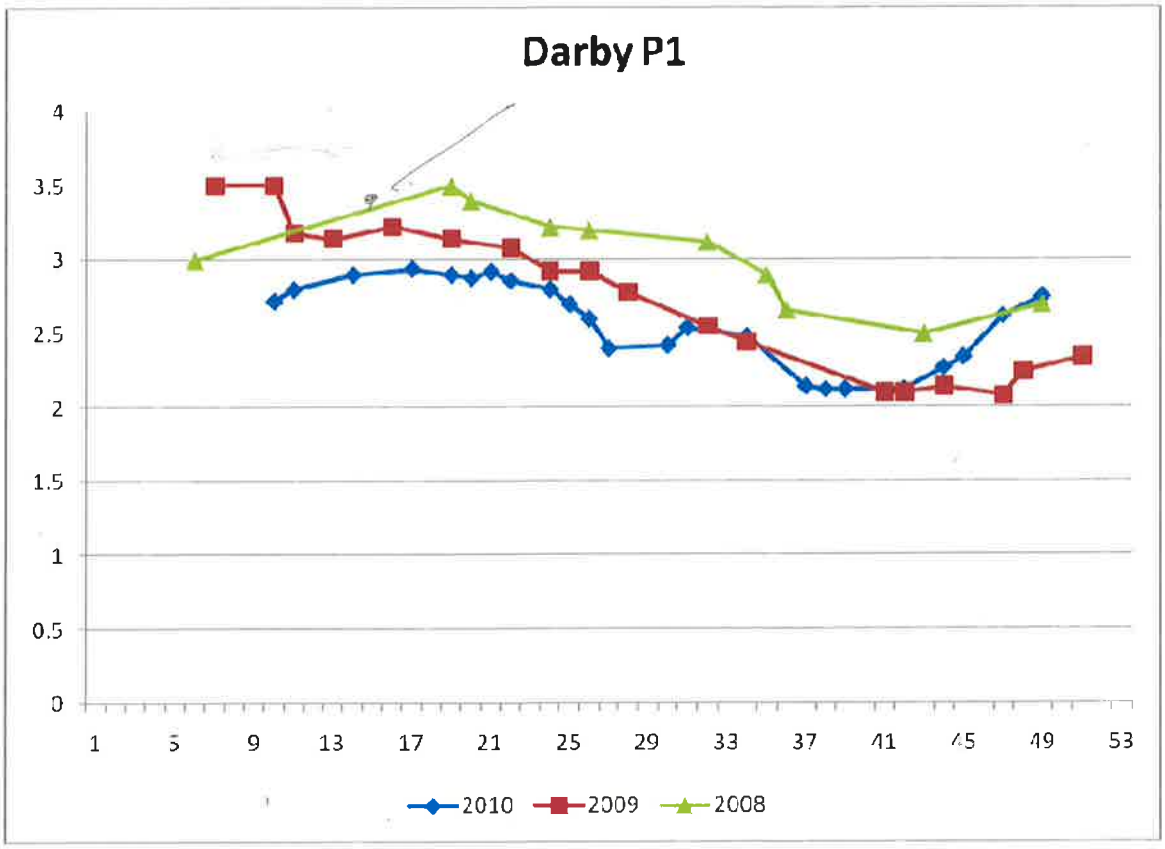
Lube + oil 1x week, has floats

Unit: Darby Pump Operations & Pump Ditch settings

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Mar.		
				Open ditch to lake ASAP
		Apr.		
		May		Set to pump water out
		June		
		July		
		Aug.		
		Sept.		
		Oct.		
				Open ditch to lake b4 ice

Unit: Darby Pool 1

Acres: 200
2010 Activity: Water was pumped into unit in July and in November.
Draw Down Years: 2007 – gauge moved over winter resulting in inaccurate water levels goals, so low water & evapotranspiration led to mudflats in July, rain events in August reflooded unit. 2003 or 2004?



Unit Goal: Provide resting and foraging habitat for migratory birds.

Objectives: Provide a hemi marsh rich in invertebrates and decrease P. Loosestrife infestations.

Strategies: Manage unit at full pool

Management Strategy Constraints:

Repairs Needed:

Unit: **Darby Pool 1**
Maintain full pool. Significant amount of mudflats exposed at 1.7

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Mar.		
	10	12		Under water
		Apr.		
		May		
	3.4 20	16	Under water	
	21	26	Under water	Ditch Higher than Unit
				6/3 Underwater, Open 3", pump running
	23	June 6	Underwater	- No change
	23	8	~3.4	Closed gate
	24	13	—	below gauge (4-5 in)
	25	24+16	—	" "
	27	July 7	3.10	
	29	18	2.90	
	30	26	3.04	Open to pump ditch
	31	Aug. 5	2.98	
	32	12	2.88	
	33	17	3.14	
	35	31	3.08	
	37	Sept. 12	3.18	
	2.6-2.8			
	40	Oct. 3	3.30	
	42	Oct 17	3.26	
	43	27	9	UNDERWATER
	45	Nov 7	8 3.22 3.08	1 inch of Board showing opened 10:30 8 inch
	46	15	3.08	
	48	Dec		

Dec 1 — 1½ inch of Board showing

51 12/19 3.06

2/6 3.0

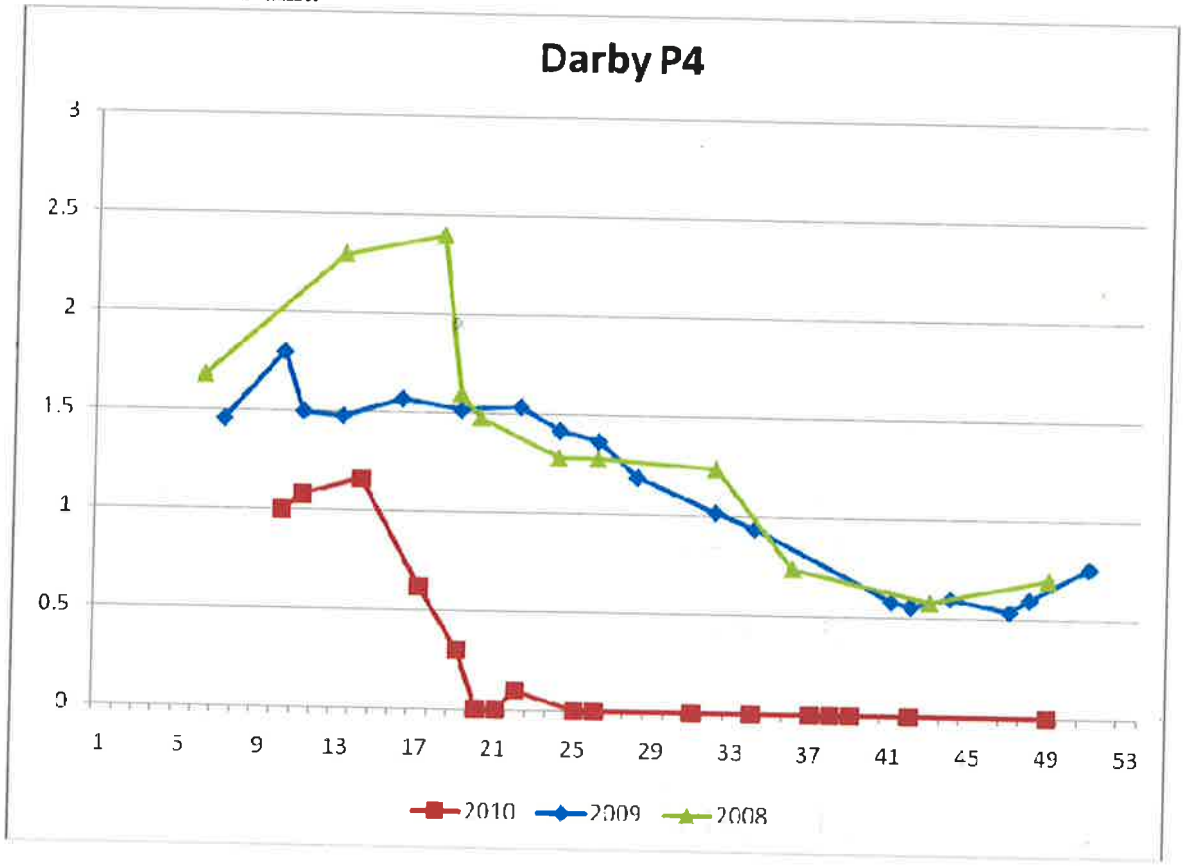
3/8 2.8

Unit: Darby Pool 4

Acres: 170

2010 Activity: Water was let out of unit in May for a 2010 drawdown.

Draw Down Years: 2010 – From May till September very good vegetation. Thousands of ducks used this unit.



Unit Goal: Provide marsh habitat for migratory birds.

Objectives: manage for plant diversity and hemi marsh conditions.

Strategies: Draw down for spring shorebird migration and to encourage vegetation growth.

Management Strategy Constraints: Unit has a history of purple loosestrife infestations. Particularly along the SE corner.

Repairs Needed:

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
	10	Mar.		
		12	1.00	400 Ducks
	1.5			Open to lake?
		Apr.		
				Draw down
		May		
	17	16	1.52	
	21	26	1.71	Unit 2 equal w/ditch, Pump side open to creek.
				Mudflats
	23	June 3	1.77	
	23	8	1.69	Leave + check next week
	24	13	1.666	
	24	16	1.60	June 24 - 1.56
	27	July 7	1.36	(Weeds cutting)
	29	18	1.16	
	30	26	1.62	Open to Ditch
	31	Aug. 5	1.58	
	32	12	1.50	
	33	17	1.72	
	35	31	1.64	
	37	Sept. 12	1.76	
	40	Oct. 3	1.89	
	42	17	1.83	
	43	27	2.0	
	45	Nov 7	1.99 91.78	opened at 1030 4 inches 8'-1.84 closed 11/20
	46	Nov 15	1.54	

48 Dec 1 1.89

51 Dec 19 1.90

2-6 1.95

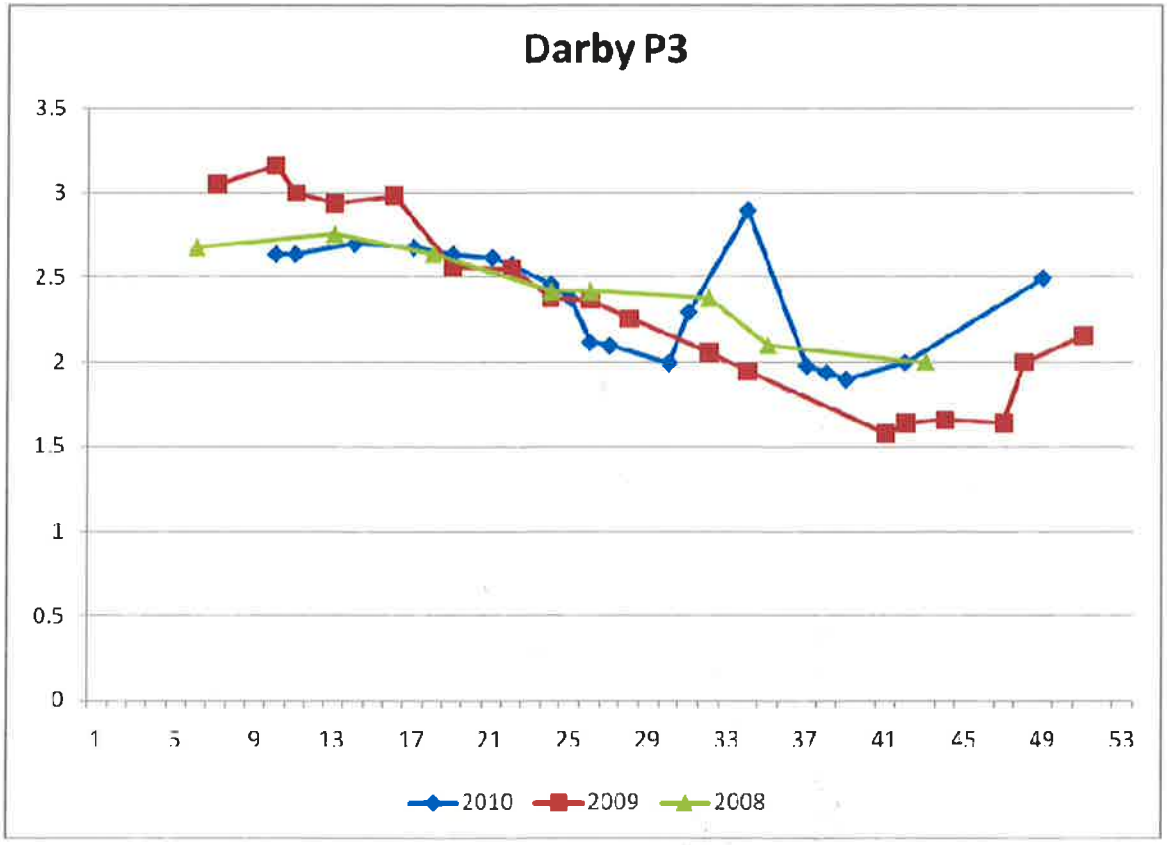
318 1.4

Unit: Darby Pool 3

Acres: 25

2010 Activity: Ditch flowing into unit in March. 2 boards were put into agri drain in July to hold water after trying to fill unit.

Draw Down Years: 2006?



Unit Goal: Provide resting and foraging habitat for migratory birds.

Objectives: Provide a combination of both annual and perennial vegetation in a hemimarsh.

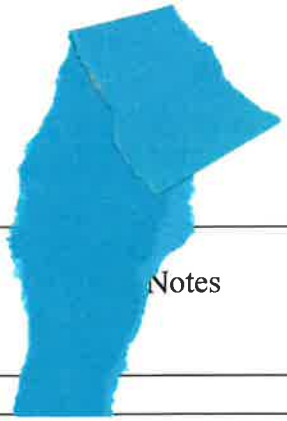
Strategies:

Management Strategy Constraints:

Repairs Needed:

II. South dike needs raised

Unit: **Darby Pool 3**
Full pool (2.64)



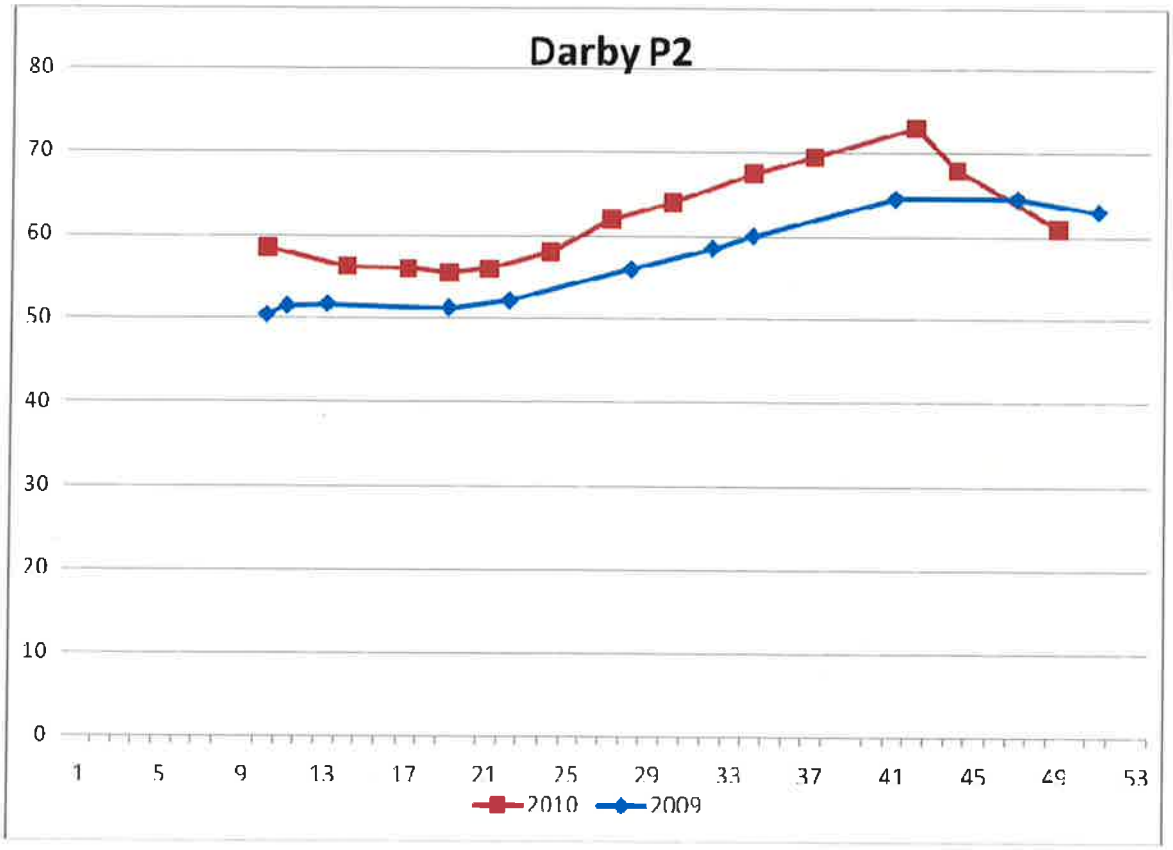
Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Mar.		
	10	12	2.82	20 Ducks 30 geese
		Apr.		
	2.5-2.6			
	20	May 10	2.49	
	21	26	2.76	Ditch 2 leveled w/ crust
	23	June 6	2.70	
	23	8	2.65	Boards were up (not known) pushed down
	24	13	2.65	
	24	16	2.60	June 24 – 2.60
	27	July 7	underwater?	
	29	18	" "	
	30	26	2.81	Flowing in from ditch, set another board
	31	Aug. 5	2.78	
	32	12	2.68	
	33	17	2.70	
	35	31	2.88	
	37	Sept. 12	3.00	
	40	Oct. 3	3.12	
	42	17	3.04	
			3.2	
	45	Nov 7	3.1	
	57	Dec 19	3.2	

2-6 3.19

3.2

Unit: Darby Pool 2

Acres: 25
2010 Activity: Pulled one board in July to bring up unit. 63 or 64" is about full pool.
Draw Down Years: unknown



Unit Goal: Provide resting and foraging habitat for migratory birds.

Objectives: Manage for hemi marsh conditions

Strategies: Manage unit at full pool. Install new water gauge.

Management Strategy Constraints:

Repairs Needed:

Unit: **Darby Pool 2**
Maintain full pool. – Measure water surface to top of [redacted]rner.

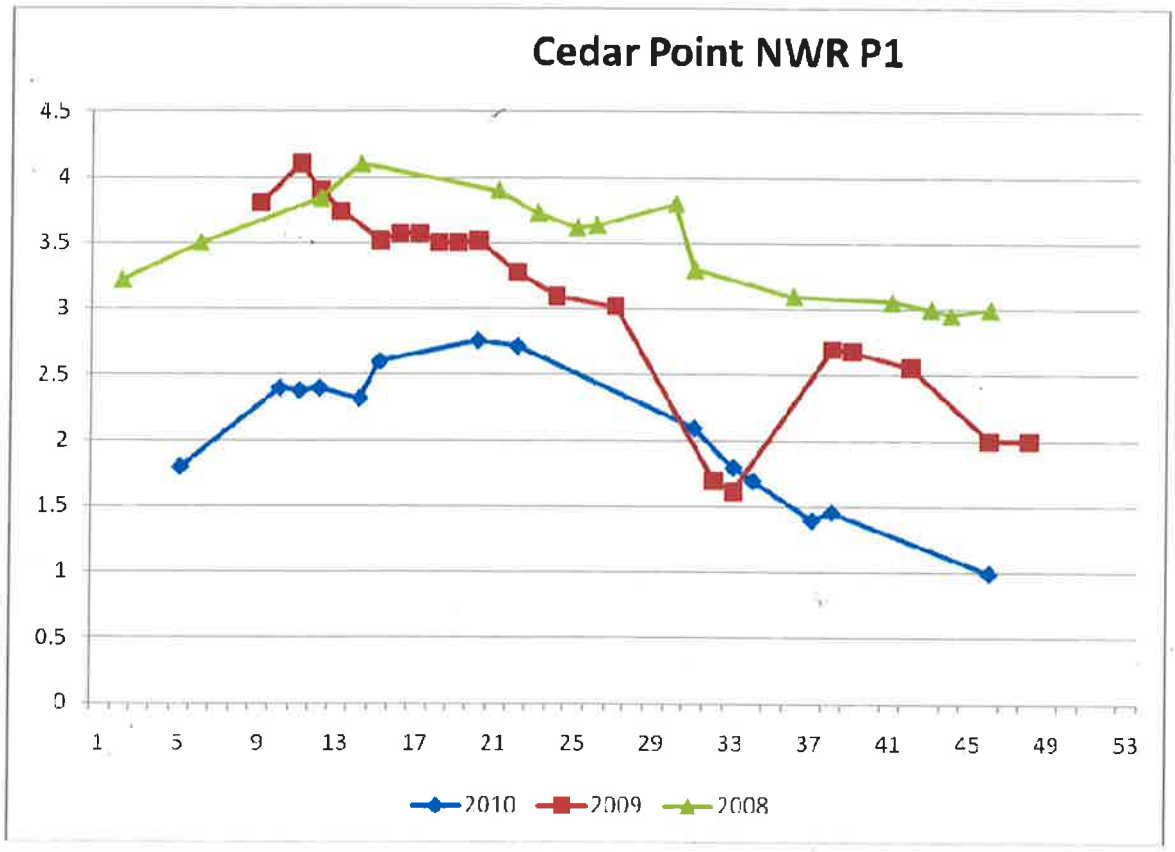
Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Mar.		
	10	12	57 1/2	water flowing over boards 150 - 200 Ducks
		Apr.		
	20	May 10	58"	
	21	26	56 3/4"	water flowing over boards
	23	June 6	59"	at Board Level
	23	8	59 1/2"	- Board was cracked open, closed
	24	16	60 3/4	
	25	24	63 1/3	
	29	July 18	67 3/4	full of maggots! " /
	30	26	62 3/4	1 board is up, need to set back down to fill
	31	Aug. 5	63 1/2	
	32	12	65 1/8	
	33	17	64"	
	35	31	62 3/8	
	37	Sept. 12	60 1/2	
	40	Oct. 3	54"	
63"64"	43	27	60"	Boards sit at 60"
		Nov 7	60"	water going over boards

Unit: Cedar Point Pool 1

Acres: 1,460

2010 Activity: A log stuck in the screw/flap gate structure found on allowed water to flow into lake. The gate was filled in March to stop leaking and pump was not finished with installment until October but by then lake levels were too low. Called Toledo Pump station to have them put some water in the unit.

Draw Down Years: 2010,2009, 2007, 2006, 2005 - Evapotranspiration leads to partial draw down.



Unit Goal: Provide nesting, foraging, and resting habitat for a variety of migratory birds and wildlife. To maintain populations of rare and endangered plants.

Objectives: Maintain full pool.

Strategies:

Management Strategy Constraints:

Repairs Needed:

I. West side WCS needs temporarily plugged & replaced.

I. Pump1 needs repaired.

III. Possible long term project to fix sediment problem in the pump.

Unit: **Cedar Point Pool 1**

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
7.	3.7- 4.0	Mar.		
	10	10	2.82	
		Apr.		
	17	26	3.18	
	20	May 17	~~3.30~~ 3.30	
	22	June 2	3.45	25 ½ inches from water to top of structure
	24	16	3.24	
	25	23	3.18	
	27	July 6	2.86	
	28	14	~2.80	19 2.72 25 2.74 LES 72.6, flowing in Brule U structure, pump on
	32	Aug. 8	2.92	
	32	12	2.88	15 2.82 pump off Lon (Olson?) not enough water coming in to run pump, even though opening on Lake is at Brule water. Blocked?
	35	31	2.70	
	37	Sept. 12	2.88	still leaks west WCS, South
	44	Oct. 31	2.66 ← WRONG UNIT	
	45	Nov 7	3.10	
	48	Dec 1	3.55	Opened 2' 1130 from West Side of structure
	49	5	3.58	Still flowing out
	50	8	3.6	close on Fri, still flowing out

Lake 572.5

1/30 3.7

3.70

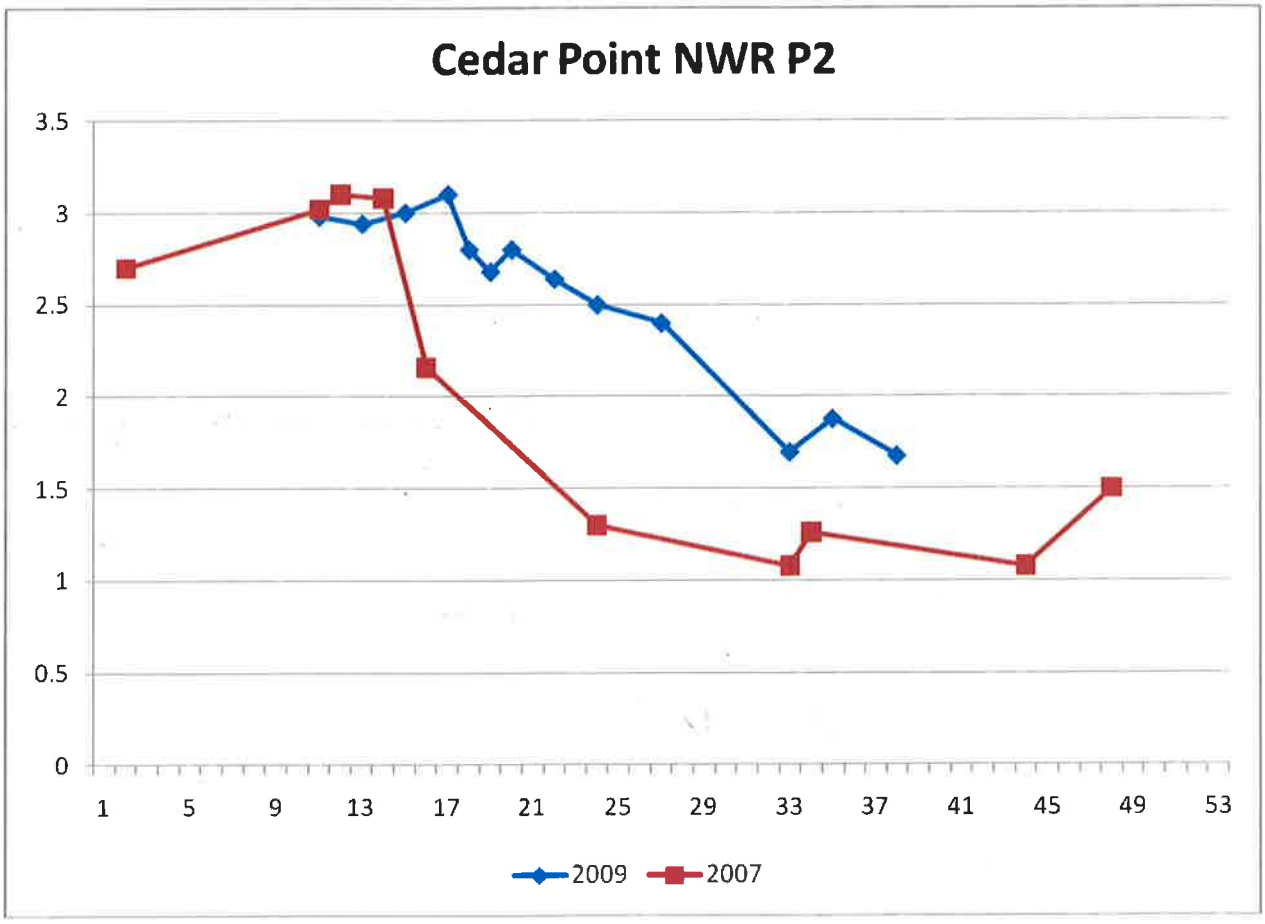
3/8

Unit: Cedar Point Pool 2

Acres: 135

2010 Activity: The gate was opened in June to pool 1 and 4 to help keep water out of Toledo Water Plant property. There is not much management in this unit.

Draw Down Years: 2007 – unit was pumped down with portable pump and completed by end of May for construction on west dike. Unit was reflooded in November with the pumps located at Toledo Pumping station.



Unit Goal:

Objectives:

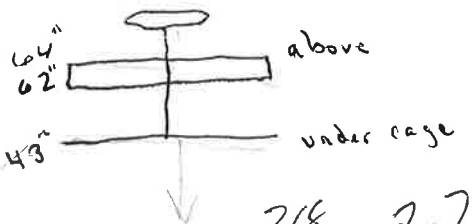
Strategies: Maintain full pool and treat invasives.

Management Strategy Constraints:

Repairs Needed:
II. Check new flap gate to ensure proper function.

Unit: **Cedar Point Pool 2**
Keep water as high as possible, without flooding neighbor's woods (max is 2.70)

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Mar.		
	10	10	1.96	(connected to pool 2
		Apr.		
	2.7 17	26	2.14	
	20	May 17	2.30	
	22	June 2	2.49 / 43"	Look at drawing at bottom for structure reading
	24	16	2.24	
	25	23	2.16	
	27	July 6	1.90	
	28	14	1.76	
	30	25	~1.72 / 53"	closed structure B/w P1+P2 (was open 5")
	32	Aug. 8	1.80	
	32	12	1.70 / 38 1/16	?
	35	31	~1.70 / 56 1/4	
	37	Sept. 12	1.98	T
		Oct.		
	45	11/11 ?	2.56	
				closed to 5"
	48	Dec 1	3.49	Opened 12" @ 11:30 2nd 2.56 - 5"
	49	8	2.66 - closed	5 2.66 - still open



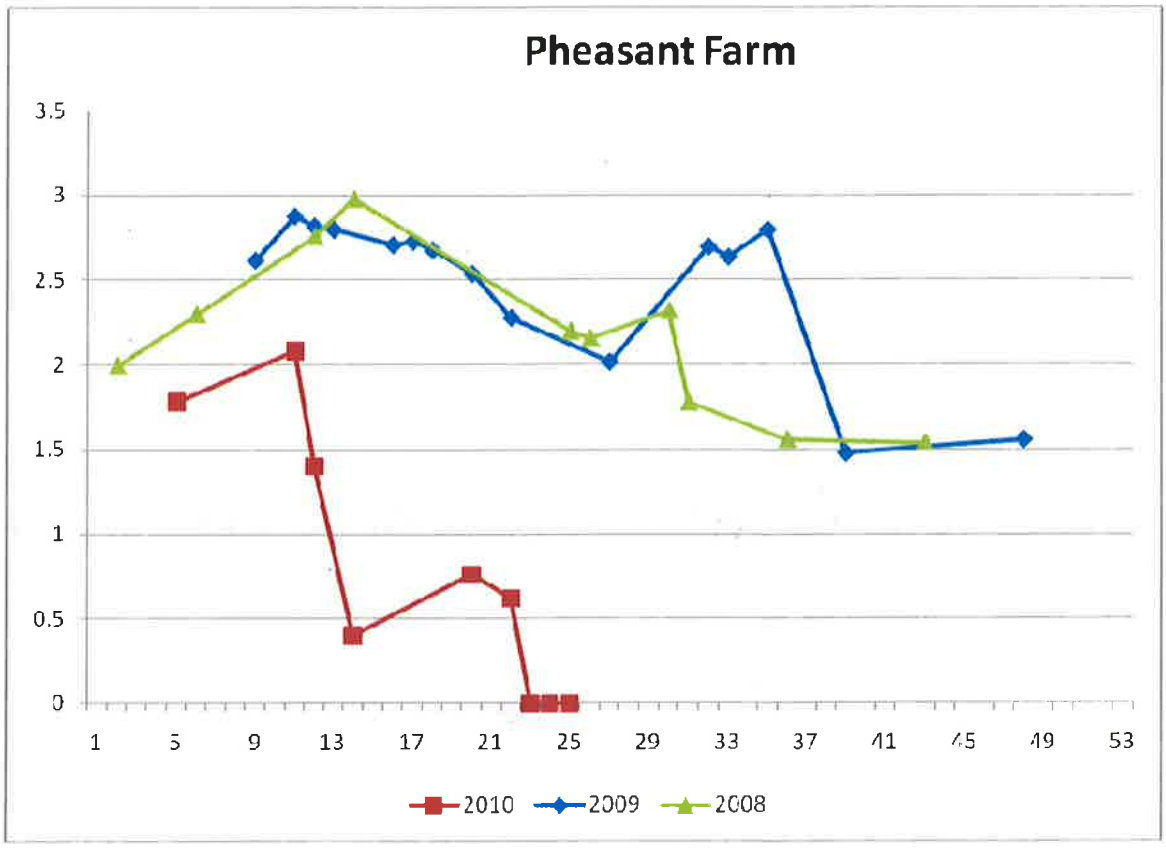
3/8 2.7

Unit: Cedar Point Pheasant Farm

Acres: 155

2010 Activity: No active management. Opened unit to county ditch for drainage in March. Then set up a portable pump to pump out unit for construction. Which began in June.

Draw Down Years: 2005- low water & Evapotranspiration led to a late summer/fall draw down.



Unit Goal:

Objectives:

Strategies: Manage for against invasives. Maintain high water levels.

Management Strategy Constraints: Gate to county drainage ditch leaks.

Repairs:

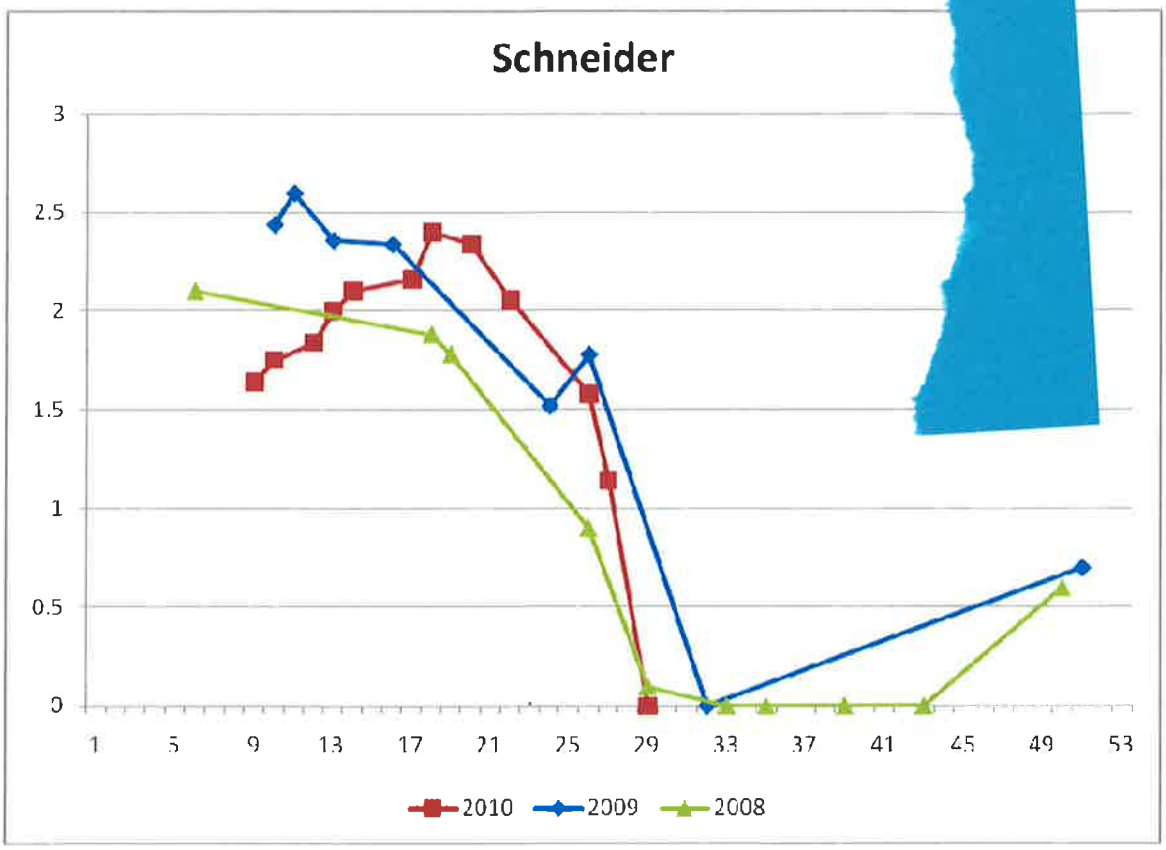
I. West Dike has failed and needs rebuilt.

Unit: **Cedar Point Pheasant Farm**

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
		Jan.		
		Mar.		
	10	10	0.36	set to flow out, closed gate
		Apr.		
	17	26	1.16	
	20	May 17	1.48	
	22	June 2	1.60	
	24	16	1.38	
	25	23	1.32	
	27	July 6	1.04	
	29	19	0.90	
	30	25	0.80	
	32	Aug. 8	.74	
	32	12	.66	
				Has screw plugs on both ends
	35	31	0.60	Open ditch gates flowin (very slow)
	37	Sept. 12	1.12	
	44	Oct. 31	1.49	
	45	Nov 7	1.48	
	48	Dec 1	2.0	
	49	5	2.10	

1/30 2.40

3/8 2.50



Unit: Schneider

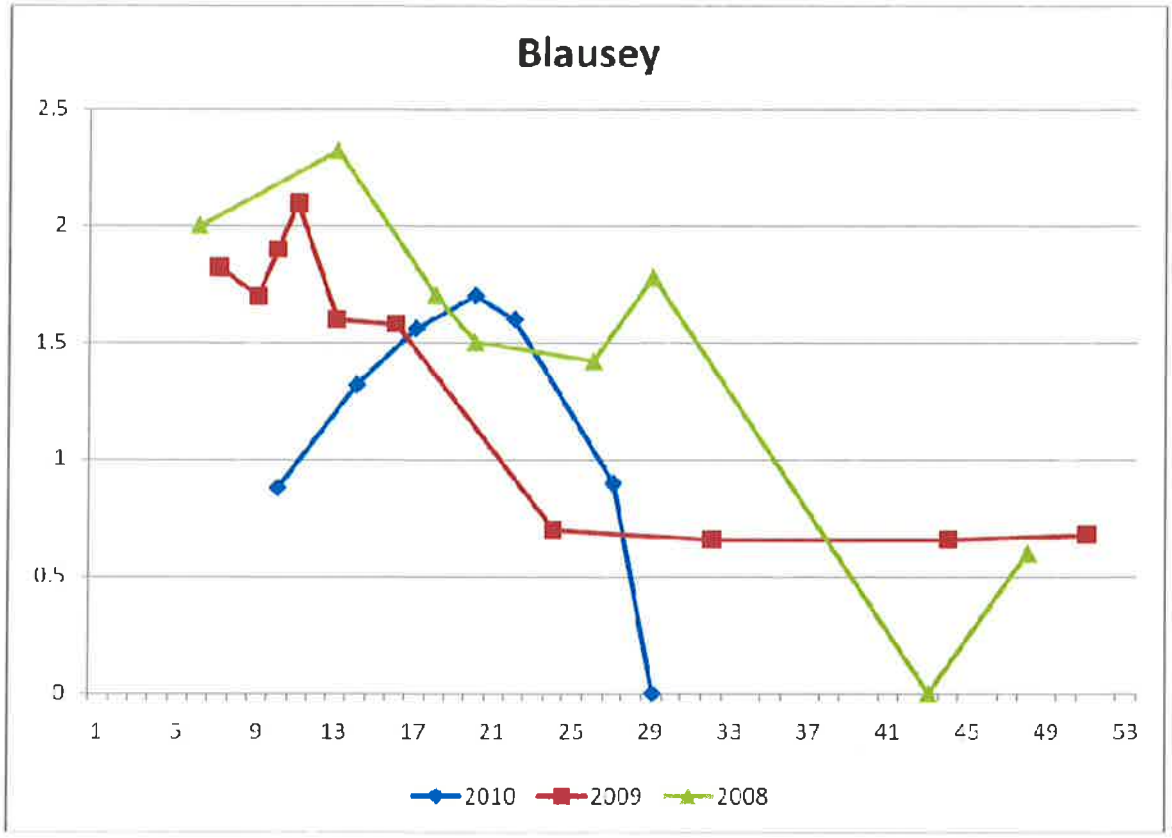
2010 Activity: Mowed 70 % of the cattail in March to try and open up area but it may be to high to kill off. Began pumping with the Thompson in April.

Draw down years: 2008- Unit was dewatered by mid June for construction on neighbor to west wetland project. In addition, areas of invasives were mowed & disked in August.

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
20		5-16	2.19	Large amounts of Phrag in S & SW corner
21		5-26	2.27	
23		6/8	2.12	
27		7/7	1.30	
30		7/26	0.50	water in ditch (+ borrow?) only
44		10/31	1.9	

Notes: Pulling boards to remove water should be done carefully to ensure not to overfill drainage ditch and flood neighbor to the east.

Disc fill wherever possible



Unit: Blausey South East unit

2010 Activity: No active management. Evapotranspiration draw down in June.
Draw Down Years: 2008 & 2007 - This unit fills up over winter & early spring. Evapotranspiration results in a late summer draw down. Construction was completed in 2005.

Week #	Desired water level	2010 Date	Actual Water level Staff reading	Notes
20		5-16		Could not find staff gauge. Possible ice removed it or hidden in cattails and flora.
21		5/26	2.16	2.2" rain at Blausey's gauge since yesterday
30		7/26	0.82	Low, but water in center of wetland
44		10/21	1.25	
51		12/19	3.2	

3/6 2.38

Unit: Blausey North East unit

2009 Activity: Pump was periodically turned on in the spring and after rain events. Unit did not hold water.

Draw Down Years: Construction was completed in 2008.

Week #	Desired water level	2011 Date	Actual Water level Staff reading	Notes
21		5/26	None, WL +4.5"	Pin Flagg, WL +4.5" overnight on 2.2" rain
				Need to pull 3-5" boards Torrin pumps, 1 ran, 7 hrs, ~ 1/2"

Boss - set boards, 2" free board, ~2ac field flooded

Navarre

Security Supervisor: 419-321-7557

2010 Activity: unknown

Draw Down Years: In 2007 & possibly 2008, Pool 2 high water was pumped down by plant employees in early April.

Notes: Pool 1 also has pumping capabilities. There are double flaps between P2 & P3. Water cannot be pumped into pool 2. P3 has double flap gates into the Lake and has a pump that pumps out. P3 has a little watershed from the runoff on the west end. The lock combo is 7556.

2007 Levels:

	May 22	November 6	
Pool 1	0.78	?	-(veg looks good)
Pool 2	2.45	1.62	-(lots of ducks-2000-2500, good veg)
Pool 3	0.75	0.18	-3000 – 3500 ducks. Beaver action on south side. Muskrats thick in NE corner and SW side, but not too bad. Veg recovering.

2008 Levels:

		Nov 4
Pool 1		
Pool 2		0
Pool 3		0.10

2009 Levels:

	April 22	Nov. 9	
Pool 1	0.92	1.22	-spring notes: >500 ducks (ruddy, scaup, Gadwall)
Pool 2	2.5" over blue pipe to P3	low	
Pool 3	0.40 (pump on)	9.58	- spring notes: >800 ducks

Week #	Unit	2011 Date	Actual Water level Staff reading	Notes
		6/22	1-1.96	2-2.66 3 1.88

Other Satellite Properties

Diefenthaler:

2009 Activity: Evapotranspiration led to a draw down in June, except for main channel. Draw Down Years: 2009 & 2008 – Evapotranspiration led to draw down in August except for main channel. It was flooded again in November from rains; 2007 - July, the unit was mistakenly drawndown. No activity on 2010

2011 - maintain full pool, floats set to come on to prevent flooding of berm.

Kontz:

2009 Activity: Unit is currently open to lake levels. The wetland remained flooded throughout entire season (Spring-Fall). Hairy willow herb was treated on the upland just south of SR 2 and before the woods. Very little hairy willow herb was found along the wetland transitional areas.

No activity in 2010

2011 - Unit open to Tuttle Creek via flooded structure under SR2 - no active management

Helle:

2009 Activity: No active management.

March & April 2009: water was across all of unit and base of hill on SE side property owner. Water was in woods all the way to road.

2011 - Take of high water in Nov-Dec. Entire unit flooded to road, ~~and ditch backed up with farm field~~

Gaeth-Kurdy:

2009 Activity: Eric maintained subpump in ditch behind his house. This pump is very costly and should be replaced with regular pump.

- In general, pump when necessary to prevent flooding

Boss:

2009 Activity: A stop log structure was installed on the drainage ditch, and the driveway culvert was replaced because it had collapsed.

2010 - Field Not Flooded

2011 - Field flooded in May for shorebirds, boards removed late May, only partially down because road ditch is so high. Boards added in Dec to hold water over winter

2011 Repairs Needed:

I. MS 7 pump need put in
II. MS 6 pipe needs patched
III. Pool 2a catwalk and structure need fixed
IV. MS 8a look at pump high pitched noise coming from structure/oil leaks
V. Floats need put on all big pumps
VI. HU6 dikes need finished
VII. Cedar point pumps need checked

Repairs that were made in 2009&2010:

I. MS 3 Agri Drain
II. Cedar Point clean out and replaced pumps
III. Pipe from HU6 to MS ditch replaced
IV. MS 4 Agri Drain
V. MS 2 pump installed

Things needing repaired throughout the year:

NOTES: